FOUNDRY TRADE JOURNAL
Established 1902
WITH WHICH IS INCORPORATED THE IRON AND STEEL TRADES JOURNAL

Vol. 86 Thursday, June 30, 1949 No. 1713

49, Wellington Street, London, W.C.2

'Grams : " Zacatecas, Rand, London "

'Phone : Temple Bar 3951 (Private Branch Exchange)

PUBLISHED WEEKLY : 26s. per annum (Home and Overseas)

The Iron & Steel Bill

An extremely interesting pamphlet has just been published by the British Iron and Steel Federation. It bears the title "Iron & Steel Bill—Some Arguments For and Against." Because of the approaching general election, this booklet could be regarded as a text book on the subject. If this be so, the publishers might have done worse than to take a cue from Mr. G. B. Shaw and entitle it "The Intelligent Voter's Guide to the Iron and Steel Bill." That initial flattery often ensures study by people who would not be attracted by the present one. Though, naturally, we have followed with profound interest the debates in the House on the proposal to create a State monopoly of iron and steel manufacture, yet when we read this account of what has taken place, we realise how much we have missed.

During the debates, one of the most important features discussed was the vesting date. It is obviously honest that the electorate should express their opinion on the proposals and the proposed time for implementing the measure would involve the selection of members of the Corporation to be set-up during a period when nobody can be certain of the outcome of the election. A second important factor—and one which would have repercussions on the foundry industry—is the competition of a State monopoly with private enterprise. This competition is bound to be unfair because the Government proposes to buy the assets of the various enterprises at "a ridiculously low price." Moreover, the Corporation would enjoy cheap capital facilities and probably certain taxation facilities. There is the possibility that they might accord preferences as to supplies and prices in favour of the industries already nationalised. Another bad feature is what has popularly become known as control from "Whitehall." Private enterprise realises the day-to-day difficulties to be associated with manufacturing processes, whilst "Whitehall" is merely interested in an over-all picture. The ironfounding industry has experienced this sort of happening on at least two occasions when it has been discovered that some areas have a lower production per man-hour than others. Reference to the *value* per man-hour was not even studied!

It is difficult to assess whether the operatives within the iron and steel industry desire their industry to become a State monopoly. The only Union that has been forthright in its support is the Amalgamated Union of Foundry Workers. This body is not particularly competent to judge the issue, as only a small percentage of their members have the slightest connection with the iron and steel industry. The majority have never even seen the interior of iron or steel works. We readily concede the right of expression of opinion, but we also retain the right to evaluate its worth. It is impossible to do justice to this booklet in the space available to us, and therefore we suggest that our readers should write for a copy to the Federation at Steel House, Tothill Street, London, S.W.1. They will find its study an interesting and easy way of mastering a subject of profound importance to them and future generations of foundrymen.

Contents

The Iron & Steel Bill, 637.—Engineering and Marine Exhibition, 638.—National Physical Laboratory, 638.—Examples of Aluminium-alloy Foundry Practice, 639.—British Standard Code of Practice, 648.—National Foundry Craft Training Centre, 649.—G.E.C. Research Laboratories, 652.—1949 Institute Awards, 653.—Imports and Exports of Iron and Steel, 654.—Marketable Production Needed, 655.—Operation of Nationalisation, 655.—Pig-iron and Steel Production, 656.—Obituary, 657.—Shortage of Generating Plant, 657.—Committee on Trade Profits, 657.—News in Brief, 658.—Gazette, 659.—Tin Industry Prospects, 659.—Contract Open, 659.—Company News, 660.—Personal, 661.—Raw Material Markets, 664.

Engineering and Marine Exhibition

Larger Space Available

The whole of the premises of Olympia, London, has been reserved for the 17th Engineering and Marine Exhibition which will be held from August 25 to September 10 this year. The honorary president of the exhibition is the Rt. Hon. Sir John Anderson, P.C., G.C.B., G.C.S.I., G.C.I.E., F.R.S., M.P. for Scottish Universities and chairman of the Port of London Authority. The exhibition, which claims to be the largest exhibition in the world solely devoted to the display of engineering products, has been held every alternate year since 1906 except for the interruptions caused by two world wars. Attendance figures for 1947 were 140,000, including many visitors from all parts of the globe. The additional space made available this year will permit a 25 per cent. increase on the area occupied by exhibits in 1947, and will enable over 500 engineering manufacturers to display their latest products.

National Recovery Theme

The theme of the exhibition this year is to be "production efficiency is the road to national recovery," and an interesting experiment is to be made with a view to assisting the national production drive. Organised parties of employees from factories and offices will be admitted to the Exhibition free, and all interested in taking advantage of this scheme—which includes arrangements for transport and other facilities—are invited to communicate with the organisers, F. W. Bridges & Sons, Limited, Grand Buildings, Trafalgar Square, London, W.C.2.

By this means it is hoped to stimulate greater interest in operatives' work, for they will be able to see the finished products (to which they have contributed their efforts) actually displayed and being sold to buyers from all parts of the world. This scheme of visiting will also introduce a competitive element into the British engineering industry, where workers from one factory will be able to compare the machines they manufacture with similar products from other factories. They will thus gain a much broader view of the industry to which they belong.

THE STAFF of the Dover Engineering Company, which is fundamentally a foundry concern, through the men's social club, acted as host at a dance given in honour of the crew of H.M.S. Superb. About 800 were present at Dover Town Hall last Saturday night, and spent a thoroughly enjoyable evening.

THE DEATH OCCURRED ON JUNE 26 of Mr. John Priestley Mortimer, of Clovelly, Church Lane, Gomersal, near Leeds, at the age of 60. Mr. Mortimer was a director of Warner Bros. iron and steel manufacturers, of Cargo Fleet, Middlesbrough, in addition to being the senior partner of Mortimer Bros., textile manufacturers of Bradford.

National Physical Laboratory New Director Appointed

Professor E. C. Bullard, M.A., Ph.D., F.R.S., Professor of Physics in the University of Toronto, has been appointed Director of the National Physical Laboratory. It is expected that Professor Bullard will take up the appointment in January, 1950; he will succeed Sir Charles Darwin, K.B.E., M.C., Sc.D., F.R.S.

Professor Bullard, who is 41 years old, was educated at Repton and Clare College, Cambridge, where he studied physics. In 1931, when the college decided to create the post of demonstrator in geodesy, Professor Bullard was appointed and he worked out improved methods of recording the times of the swing of pendulums for determining the force of gravity. Elected to the Smithson Research Fellowship of the Royal Society in 1936, Professor Bullard continued to work at Cambridge and took up geophysical methods of determining the geology of the earth's crust. When war broke out in 1939, Professor Bullard joined the Admiralty. His most important work was on the degaussing of ships against the magnetic mine and he was also concerned with measures against the acoustic mine. From 1944 to 1945 he was Assistant Director of Naval Operational Research. He was elected a Fellow of Clare College in 1943 and when the war ended again took up his geophysical work until 1948, when he was appointed Professor of Physics at Toronto University. He was made a Fellow of the Royal Society in 1941.

British Non-ferrous Metals Research Association

The annual general meeting of the British Non-ferrous Metals Research Association was held at the Savoy Hotel, London, on Tuesday, June 28, Lt.-Col. Sir John Greenly, K.C.M.G., the chairman of the Association, presiding.

Subsequently, a luncheon of members and guests took place, the attendance being over two hundred. The toast of "The Research Association" was proposed by the Rt. Hon. Sir John Anderson, P.C., F.R.S., M.P. (the chairman responding), and the toast of "The Guests" by the Association's deputy-chairman and hon. treasurer, the Hon. R. M. Preston, D.S.O., to which Lord Brabazon of Tara, P.C., M.C., responded. Following the meeting, members and guests were conveyed in coaches to the Association's laboratories in Euston Street, where they toured the establishment and saw the various researches in progress.

ON TUESDAY OF LAST WEEK, Mr. W. Wilson, foundry manager of Le Grand Sutcliffe & Gell, Limited, addressed the Southall Rotary Club on the subject of "Craftsmanship in the Foundry Industry." His address was an outstanding example of bringing home to the layman something of the foundries contribution to both industry and culture, worthy of emulation by our readers whenever they have the chance to address non-technical audiences.

Examples of Aluminium-alloy Foundry Practice*

Casting Technique in Relation to Design and Alloy used

By J. Caven and H. W. Keeble, A.I.M.†

(*Continued from page* 626.)

Volute Casing

The volute casing, a casting approximately 34 in. diam. and weighing 135 lb., was moulded with volute and port cores on the drag. This was accomplished by first producing the drag and core as separate units, then placing the drag on the core, turning over the assembly by means of trunnions provided on the moulding box, and removing the core plate. By this means the green-sand volute and port cores were assembled on the drag ready for finishing and closing of the middle part. The finished casting is seen in Fig. 9. Fig. 10 shows the mould parts and cores involved.

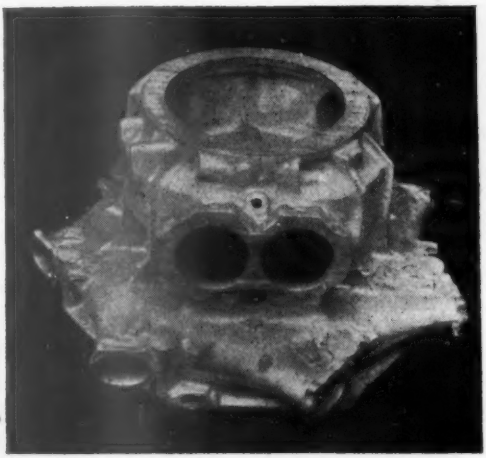


FIG. 9.—FINISHED VOLUTE CASING.

The complete pattern equipment consisted of five 49-in. × 47-in. moulding plates made up as follows: drag plate, middle part, one extra middle part to balance ramming operations, a top part on to which the main dry-sand core was assembled prior to the mould being closed, and a core plate to form the volute and port cores. The four pattern plates were provided with steel clamping plates to engage the pneumatic locking device on the moulding-machine tables and the moulding boxes were fixed on the pattern plates by means of cotters through slots in the box pins. Moulding followed normal procedure, *i.e.*, all preparatory work was completed at station "A" and finished *via* Sandslinger, moulding machine and assembly line. The volute and port-core plate was arranged adjacent to the roller conveyor coming from the moulding machine, so that the drag could pick up the core assembly before passing on to the finishing line.

Castings Forming the Cab Unit

The cab unit is built of five castings consisting of a canopy 4 ft. 6 in. × 3 ft. 3 in., side members, R.H. and L.H., each 4 ft. × 3 ft. 10 in., a rear casting 4 ft. × 2 ft. 2 in., and a front casting 4 ft. × 3 ft. The bolting flanges for assembly purposes are mostly at angles to the main plates and all components have facings and seatings to carry the glass which is required to complete the cab. Machining, other than drilling, is not provided for. It is, therefore, essential that the various castings are true reproductions of the patterns and free from distortion, otherwise they will not assemble correctly and the seatings for the glass will be out of alignment. Fig. 11 shows the cab unit, and Figs. 12 and 13 the canopy and one of the side members respectively.

The foundry approach to this class of work obviously suggests machine moulding, but having in mind the relatively small number of castings required, the founder appears to be faced with the expense of providing a sufficient number of moulding boxes to operate the patterns individually or, alternatively, of working with minimum number of moulding boxes and making frequent pattern changes on the moulding machines (which would mean reduced production in relation to machine and floor space occupied). In this case the patterns were mounted on pattern boards, which had been provided with the standard clamping plate. Four pairs of moulding boxes were provided, *i.e.*, two boxes for each of the four different patterns, the side members being R.H. and L.H. patterns. The equipment was made available at station "A," and moulding followed normal procedure, *i.e.*, preparatory work at station "A" and finished mould produced *via* the Sandslinger, moulding machine and assembly line.

*Presented at the Cheltenham Conference of the Institute of British Foundrymen.

†The Authors are, respectively, Technical Manager and Chief Metallurgist at William Mills, Limited, Wednesbury.

E

Aluminium-alloy Foundry Practice

Large Diesel-engine Pistons

Pistons in aluminium alloys for the automobile engine have been proved components for a long time, but the fact that they are used in large Diesel engines may not be so well known. The piston is the heart of the engine and complete reliability of the piston casting must be assured. Dispersion of the heat from the crown must be uniform and this requires complete soundness and homogeneity of structure. The crown surface must be free from cavitation, otherwise local carbon deposits may build-up, with attendant dangers of pre-ignition. Furthermore, the piston must be completely stable dimensionally and be entirely free from internal stresses.

The technique described here has reference to production of large liquid-cooled pistons for a famous series of heavy Diesel oil engines. The same technique has been applied successfully to producing un-cooled Diesel-engine piston castings which, of course, are of simple design and do not contain the internal walls of the cooled piston. The pistons concerned are 22 in. dia. by 33 in. long; they have a shaped crown of 2½ in. thickness with a side thickness at the crown of 2¼ in. tapering to 1¼ in. below the bottom-ring land. The unfettled weight was 7 cwt. and the despatched weight, after rough machining, was 450 lb. approximately. Fig. 14 shows one of these pistons (with piston heads cast separately) made by the technique described as follows:—

The method of making was largely determined by a consideration of the following features: It was considered that the metal mass in the crown and the way it was distributed was such that shrinkage defects would occur unless feed metal was provided from the crown. Fig. 15 shows a section of the crown of this piston. Further points borne in mind were: (*a*) the side-wall thickness at both the crown and skirt was too heavy to cast without chills; (*b*) difficulties of placing and supporting the main core would be apparent if it were hung on the top part; (*c*) arrangement of runner must be made to avoid turbulence and "hot spotting" in front of the ingate and also to keep the temperature gradient in the right direction. Accordingly it was decided to cast crown upward in a metal mould with sand cores faced with chills. The complete equipment (Fig. 16) consisted of:—

FIG. 10.—MOULD PARTS AND CORES FOR THE VOLUTE CASING.

A three-piece chill, or die in cast iron, comprising base plate "A" arranged with the core print to locate on the main sand core "D," cupped bottoms for downgates "E" and locating dowels "F." Die sides "B," 4 in. longer than the actual casting, were arranged with 4 in. dia. down-gates "E" in the joint. An extension box "C" or feeding head, a stopper-controlled runner-box "G," main core-boxes "D" and "D.1," and ⅞ in. dia. runner tubes and collars were also provided. Cores "D" and "D.1" were made in silica sand and arranged with drilled and tapped core-grids for the purpose of bolting core "D.1" to the main core by

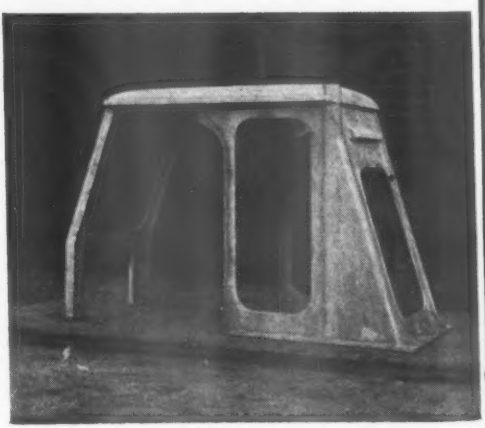


FIG. 11.—ASSEMBLED CAB UNIT.

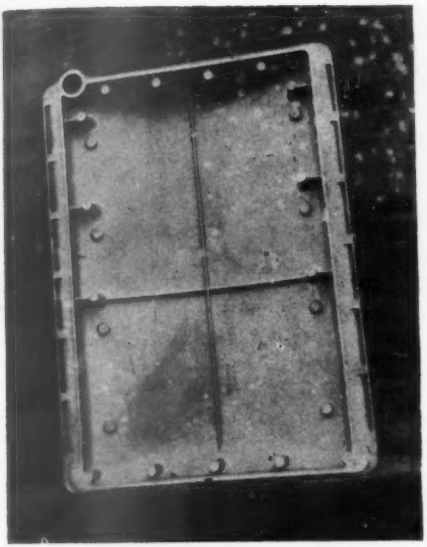


FIG. 12.—CANOPY CASTING, FORMING PART OF THE CAB UNIT.

means of single bolt in a central position to secure the main core "D" to the base-plate "A." Other special features were:—

(1) A line of cast-iron chills were used opposite to the ingates to minimise the tendency to "hot spotting."

(2) Pockets were formed in the core at its base to absorb any turbulence occurring from first splash of metal when pouring.

(3) Mould vents were arranged to pass through vent holes in the base plate.

Casting

The assembled cores were arranged on the base-plate and the die sides which had been previously shot-blasted, coated with machine oil and torch-warmed, were closed on. The extension-box or feeder head "C," rammed in sand to avoid chilling the feed metal, was placed in position and the whole assembly, together with runner box, "G," ⅞ in. dia. steel-tube down-gates and stoppers, was placed in core stoves for the purpose of pre-heating to approximately 200 deg. C. prior to pouring. The metal was next prepared and, when at the required temperature, the mould assembly was withdrawn from the core stove, the runner box, down-gates and stoppers were quickly placed in position and the mould was made ready for pouring with the least possible loss of heat.

The metal was carried in a geared ladle and poured at a temperature of 710 deg. C. On completion of pour, the ⅞ in. dia. steel tubes were withdrawn by means of eye bolts, and the runner box was removed. This operation exposed the feeder head or riser and permitted skimming of the metal before addition of further feed metal at 750 deg. C. to compensate for shrinkage. The casting was rod fed by means of four 2 in. dia. rods, and the last of the feed metal was added approximately 30 minutes after the actual pour. (To secure adequate soundness there must be complete freedom from gas and full refinement of grain size.)

The dressing operation consisted of removing the gates by means of a pneumatic chisel and sawing-off the feeder head and sullage-ring at the skirt on a horizontal bandsaw. The dressed casting was then rough machined to within $\frac{1}{16}$ in. of final size, and the crown was machined to shape, before heat-treatment. In the lathe, the crown was rotated when loaded with bolts and nuts to dislodge adhering core sand.

Heat-treatment Operation

These pistons are made in "Y" alloy and no light alloy excels it in toughness and maintenance of strength at elevated temperatures. When heat-treated in the normal way mechanical test properties are obtained from the standard DTD sand-cast bar which are impressive to the designer. But, as indicated previously, complete dimensional stability is essential, consequently the approach to heat-treatment must be along the lines of securing the best properties commensurate with these conditions. The development of maximum test-bar properties depends mainly upon the severity of the quenching treatment. In the quenching of a complex enclosed structure as that in Fig. 15, high internal stresses are set up, which, if left un-relieved, would cause the piston to distort (seize) or crack (breakdown) under the mechanical and thermal loading arising from

FIG. 13.—SIDE-MEMBER CASTING FOR THE CAB UNIT.

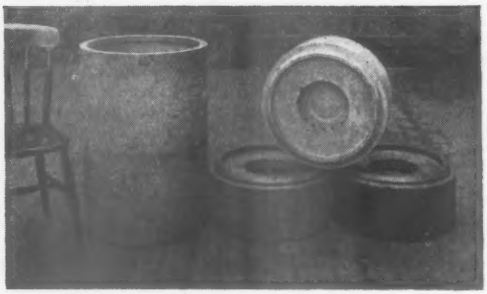


FIG. 14.—LARGE DIESEL-ENGINE PISTON CASTINGS, WITH SEPARATELY-CAST HEADS.

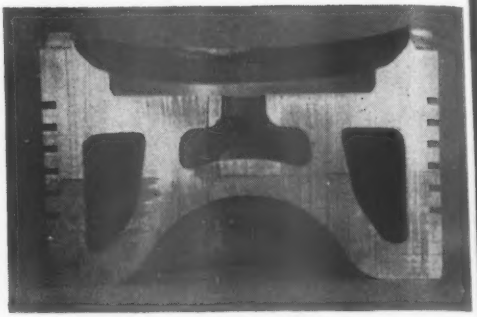


FIG. 15.—SECTION THROUGH THE CROWN CASTING FOR A LARGE DIESEL-ENGINE PISTON.

service. The heat-treatment instructions are therefore as follow:—

Load into a cold furnace and raise to 500-515 deg. C. after soaking for about five hours at temperatures of 150 deg. C., 300 deg. C., and 450 deg. C. After attainment of maximum temperature, soak for 24 to 30 hrs., then drop the temperature to about 485 deg. C. After an hour or so at this heat, quench in warm oil. Withdraw from the oil after ½ hr. or so, drain-off the oil and keep free entirely from draughts while so doing. As soon as possible, re-charge the casting into the furnace at about 150 deg. C. After a 3-hr. soak raise the temperature to 275 deg. C. and give a further 3-hr. soak, followed by cooling in *still* air. This type of

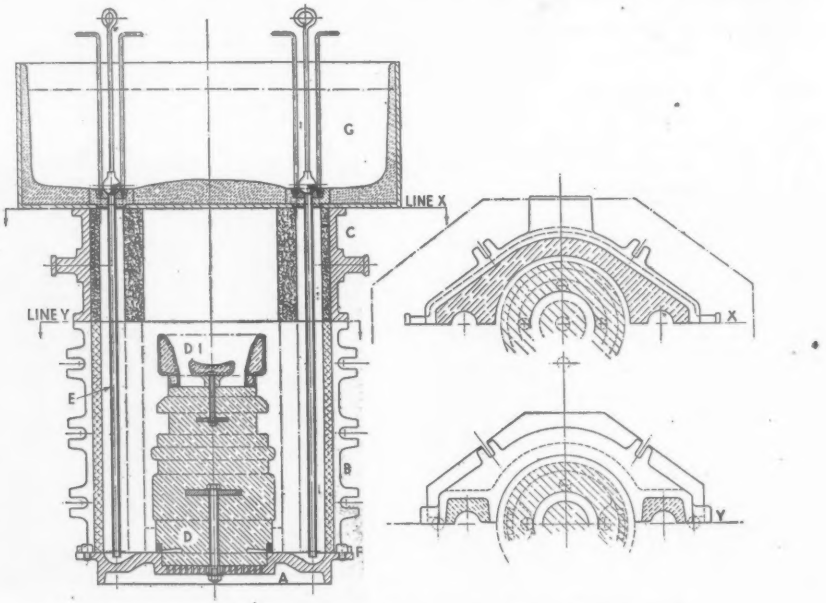


FIG. 16.—COMPLETE EQUIPMENT FOR PRODUCING A LARGE DIESEL-ENGINE PISTON.

FIG. 17.—HALVES OF A COMPOSITE PISTON WHICH WAS DAMAGED BY A LOOSE BOLT.

treatment produces a stable condition—dimensionally and metallographically—a Brinell hardness of around 75 and tensile strength of 12 to 13 tons per sq. in. on a standard DTD. sand bar.

An Unusual Failure

Figs. 17, 18 and 19 show a composite piston made up of a piston-head and skirt produced by the technique described. These are bolted together, but on one occasion one of the bolts failed and, during the operation of the engine, the free bolt-end in the crown jigged up and down with each revolution of the engine producing a stress of the nature of a repeated-impact test. After about 385 hrs. of running (some millions of reversals) the bolt punctured the crown and caused loss of compression and blowing out of the crankcase inspection doors. This incident adequately demonstrates the soundness and toughness of piston castings made in this manner.

Large Paraboloid Casting produced by Gravity Die-casting

The paraboloid casting (see Fig. 25) provides a good example of the type of casting where correct form and a high-class polished finish are important features which dictate casting technique. This 2.L.33-alloy casing 36 in. diameter, 27 in. long, with ¼ in. wall thickness and weighing about 70 lb. was first required as a prototype, followed by small lots, and originally was sand moulded from a shell pattern. The method of production provided satisfactory castings, but due to the special care and attention required in preparing the mould to ensure freedom from buckles and soft ramming and the subsequent polishing of a relatively rough-surface casting, production was costly and slow.

As the demand for castings increased, alternative methods of production were considered and finally it was decided to produce from a gravity die. In making this decision consideration was given to the following factors:—Size of the die components to be within the capacity of the machine tools available; the base-plate to be mounted on wheels so that the assembled die could be moved easily; need of a casting pit into which die could be placed so that the gates were at the required height for pouring; provision of crane facilities for operating the main core and heating chamber and brick-lined gas-fired muffles required for pre-heating the die prior to a casting run.

The die was arranged as shown in Fig. 20 and consisted of a base. "A," made up in three sections to simplify machining in the toolroom, and mounted on wheels; a runner-block, "B," made in halves and provided with a hinge and locating spigot and a core, "C," provided with a collar and eye bolts for the purpose of withdrawing the core from the mould by means of the overhead crane and levers. The casting pit was made sufficiently large to take muffle "D" for heating the die and was fitted with suitable gas burners, etc. The muffle hood, which was brick-lined, consisted of a sheet-steel outer casing arranged with suitable internal flanges for supporting the refractory lining; an asbestos cone suspended from the roof by means of a steel collar bolted on the top plate; a chimney arranged with a

FIG. 18.—HEAD OF THE COMPOSITE PISTON, SHOWING THE PUNCTURE CAUSED BY THE LOOSE BOLT.

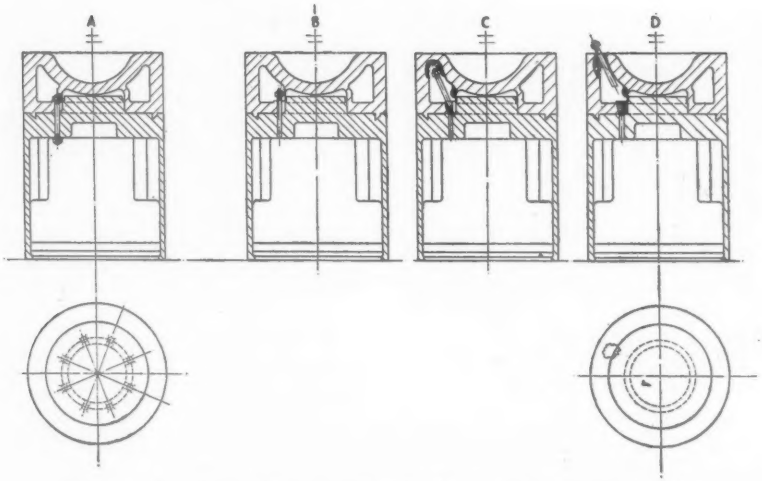


FIG. 19.—COMPOSITE PISTON, SHOWN IN FIGS. 17 AND 18, INDICATING THE WAY IN WHICH FAILURE WAS CAUSED BY A LOOSE BOLT.

damper to control the heat discharge and three eye-bolts for lifting purposes. The arrows (Fig. 20) indicate the heat flow when pre-heating of die was in progress.

Casting

The die having been prepared and heated to approximately 200 deg. C., was coated and was then available for production. Metal, at a pouring temperature of about 740 deg. C., was carried in four 25-lb. hand-ladles. Approximately 90 lbs. of metal was required to cast and to fill the risers to the required height.

For sawing off the four ingate/risers the castings were mounted on a wooden cradle.

The equipment required for this method was costly as compared with the shell pattern required for sand moulding, but the following advantages quickly repaid the initial costs:—(1) Production increased from four to six castings per shift by sand methods to about 65 castings per shift, (2) cost of dressing, etc., was reduced (bottom gates and top risers were required for the sand method, while only top runners/risers were needed for the gravity-die method); (3) reproduction of parabolic form was secured without risk of distortion, etc.; (4) there was freedom from inclusions and blow-holes, which often appeared on the important inside face of sand castings; and (5) a smooth casting skin was produced which readily "scurffed" and polished without altering the contour of the curve.

Around the body of the casting were certain large bosses; difficulty was experienced in producing them adequately sound. This was expected to some extent by reason of the shrinkage characteristics of 2.L.33 alloy. Eventually, the difficulty was overcome by extra-heavy chilling of each boss face by building copper sticks into the die at the relevant positions. Another difficulty found was in balancing the intensity of the modification treatment of the alloy so that there was as full a development of the properties of the alloy without undue attack by the sodium on the die coating. Once the coating was attacked (as may be seen in Fig. 21) the rhythm of production was broken by reason of the necessity to renew it so as to secure full running of the job without surface-flow-marking and, possibly, sub-surface defects.

Fig. 22 shows the pouring operation; the stand at each side of the die is for the purpose of supporting the runner blocks when swung open to permit stripping. The withdrawn core is seen in Fig. 23 and the areas adjacent to the large bosses on the wall may be seen rubbed free of coating to increase locally the chilling action. Fig. 24 shows the casting being withdrawn and part of a day's production is seen in Fig. 25 after the sawing-off of the runner/risers. On the apex of some castings may be seen a fractured flat chill-cast test-piece which was taken at intervals to check the condition of modification of the alloy. These photographs were taken before the casting pit was prepared, hence the need for the platform around the die to facilitate pouring.

Special-purpose Gravity Die-casting with a Sand Core

The casting, a fuel-injection pump body, is typical of a class of work of which the outstanding requirements are pressure tightness and a fine finish from machining operations such as fine boring, tapping, etc. In one

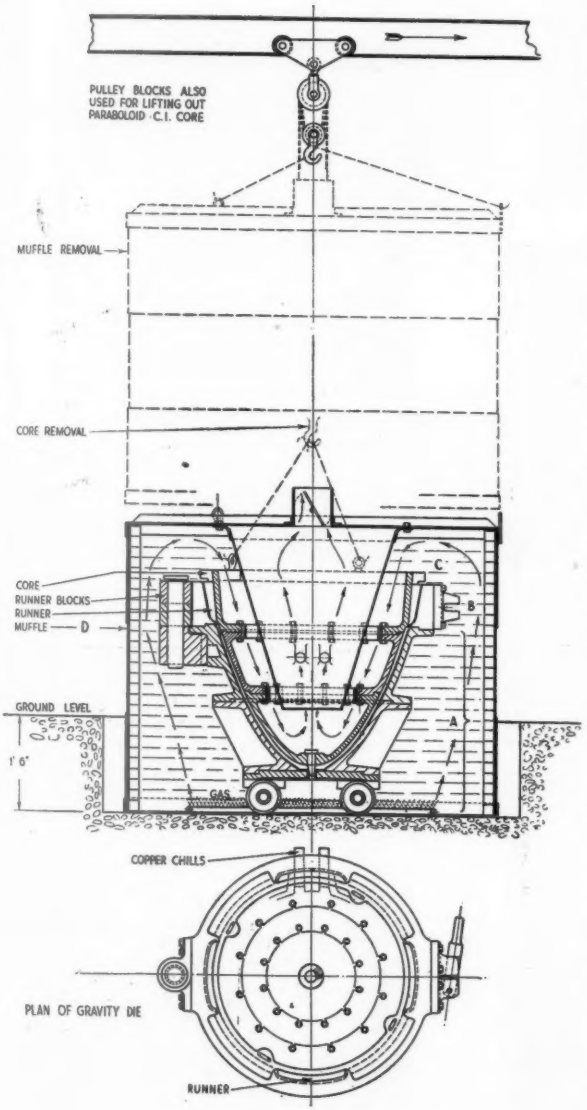


FIG. 20.—SECTIONAL AND PLAN VIEWS OF THE DIE FOR THE LARGE PARABOLOID CASTING.

particular instance of this type of work, it is reported that the casting takes about six weeks to machine completely, and which costs £3 10s. before it can be tested as a working unit for pressure tightness. Failure at this stage is disastrous from all points of view. Consequently, this class of work is produced under very carefully-regulated conditions to obtain consistently the high level of quality necessary.

The casting described weighs 9¼ lb. as fettled, and over 20 lb. as cast; it is made in L.8 alloy, has metal sections varying up to 2 in., and because of design complexity has to be made with a sand core. To secure the soundness which is essential, there must be special attention to develop the right temperature gradient to the feed reservoirs; the metal must be fine-grained and gas free; pouring temperature and character of pour must be controlled to ensure freedom from turbulence and to give progressive solidification as the die fills. Furthermore, the core must be well baked and dressed to give a surface finish on the casting as little different as possible from that given by the metal mould.

Fig. 26 shows the casting as "stripped" and also the ingate section. It will be noted that the runner/ingate also acts as a feeder to the solid head part of the casting. This part undergoes extensive boring out and these multiple bores must be pressure tight in relation to each other and the outside wall.

Die Construction

The construction of the die followed conventional practice. It consists of two sides mounted on a base plate, which carried the drop-core arrangement, the core pieces moving through the sand core. Fig. 27 shows the die, opened ready for assembly; Fig. 28 illustrates the sand core (seen alone in Fig. 29) mounted and the metal core construction in the other die side; Fig. 30 demonstrates the die opened, after pouring, with the side metal cores withdrawn and the bottom metal cores dropped, leaving the casting ready for lifting off. On the bottom side of the core adjacent to certain thick sections on the casting, chills were built-in and may be seen by referring to Fig. 29. This latter was part of the technique designed to give directional and balance solidification.

Great care was taken in the preparation of the metal to secure a fine grain structure and freedom from gas contact. Two maintaining furnaces were used, fed from melting units. One such furnace was being prepared while the die was worked from the other. The treatment took the form of

Aluminium-alloy Foundry Practice

de-gassing and grain refining by the use of hexachlorethane and boron compounds. A minimum standing period and intensive control of temperature was insisted on at all stages. This last-named factor being regarded as all important. Close examination of Fig. 27 indicates that the die carried provision for further side-feed downgates and also a top riser, none of which was used. When handling designs of this character it is most desirable to have in the die build-up sufficient capacity to allow of

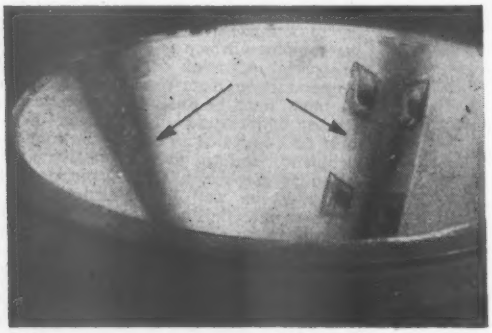


FIG. 21.—BREAKDOWN OF THE DIE COATING ON THE PARABOLOID MOULD.

FIG. 22.—POURING OPERATION FOR THE LARGE PARABOLOID CASTING.

FIG. 23.—WITHDRAWAL OF THE CORE FROM THE PARABOLOID CASTING.

FIG. 24.—EXTRACTION OF THE PARABOLOID CASTING FROM THE DIE.

FIG. 25.—GROUP OF PARABOLOID CASTINGS; RUNNERS AND RISERS HAVE BEEN REMOVED.

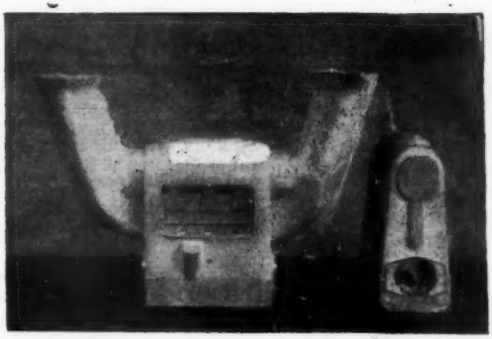


FIG. 26.—FUEL INJECTION PUMP BODY CASTING WITH ITS RUNNER/FEEDER ATTACHED.

FIG. 27.—DIE FOR THE FUEL INJECTION PUMP, OPENED READY FOR RE-ASSEMBLY.

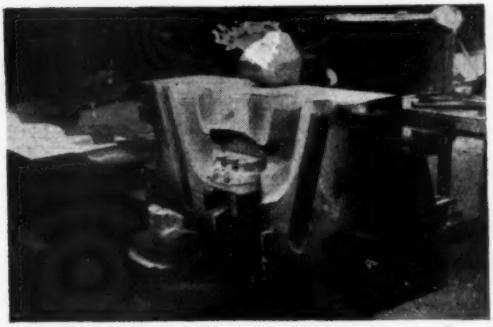


FIG. 28.—ASSEMBLY OF THE DIE FOR THE FUEL INJECTION PUMP BODY.

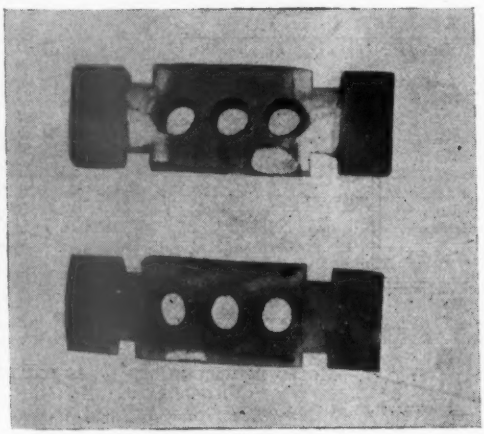


FIG. 29.—SAND CORES FOR THE FUEL INJECTION PUMP BODY.

FIG. 30.—FUEL INJECTION PUMP DIE OPENED AFTER POURING, READY FOR REMOVAL OF THE CASTING.

Aluminium-alloy Foundry Practice

amendment to the runner/riser system. The pouring temperature was around 720 deg. C. and the production rate was of the order of 65 pieces per normal shift.

In conclusion, the Authors wish to express their thanks to Messrs. William Mills, Limited, for permission to publish details of the activities to which they have referred, to their colleagues for the help each has given in the various activities described, and to Mr. N. Pearson for his assistance in preparing the drawings.

British Standard Code of Practice

Small Boiler Systems using Solid Fuel

Draft code No. 403,103 has been prepared by a Committee convened by the Royal Institute of British Architects on behalf of the Codes of Practice Committee. This Committee has been appointed to prepare Codes of Practice for Civil Engineering, Public Works, Building and Constructional Work, and it is hoped that the codes will be accepted by professional men, contractors, craftsmen and the public generally. They are, therefore, being circulated in draft form for comment and criticism.

Draft Code No. 403,103 relates to design and installation of small boiler plants, mainly for domestic uses. Copies (price 3s.) may be obtained from the British Standards Institution, 24/28, Victoria Street, London, S.W.1, and any comments should be submitted to the Council for Codes of Practice for Building, 42, Onslow Gardens, London, S.W.7, before July 25.

"My Career"

This is the title of a brochure published by the English Steel Corporation, Limited, of Sheffield, 9, and elsewhere, designed to set out clearly to parents and boys the advantages offered by the firm to youngsters entering their employ. Naturally enough, the reviewer was specially interested in the training of boys for foundry work and he suggests a greater appeal would have been made, if it could be arranged, for some of the boys at least, to spend part of the training in the two towns other than the one to which they would be normally attached, as the company operates foundries at Darlington, Sheffield and Manchester.

Because the organisation is so large, it has been deemed necessary to detail the products and activities of the firm. This takes up seven of the twenty-four pages incorporated. The training of junior employees; of engineering and foundry apprentices; hot-process workers and lads for the electrical trades are covered in general terms. Then there are paragraphs on day and shift working; progress during training; the award of scholarships; welfare and thrift and recreation and sports. For the use of parents, a detachable form of application is included. The illustrations are excellent throughout. The appeal is made more to the parents than to the actual boys.

Use of Slab or Fill-up Cores

By "Checker"

Difficulty in assembling cores in the mould, owing to overhanging projections, can sometimes be overcome by making the pattern print substantially larger than the amount allowed in the corebox, and so permit a core to be placed in the mould at the correct height, and then to be moved along horizontally into its true position. This would leave a considerable gap to be filled in between the core and the outside mould face. For filling this space, a slab or fill-up core can be used satisfactorily.

Fig. 1 (*a*) shows a part section through a bottom half-mould with the main core in position. In the space shown at S the side core (see Fig. 1 (*b*)) has to be positioned, with the cylindrical portion butting up to the main core. This side core cannot pass the overhanging piece of the main core, unless extra provision is made by an extension on the pattern print, sufficient to allow the core (*b*) to pass down and then, by moving it towards the main core, correct positioning is obtained. Fig. 1 (*c*) shows the side core in position, and indicates the space between core and mould, which can be filled in with a flat slab or fill-up core (*d*), and so make positive the setting of the side core.

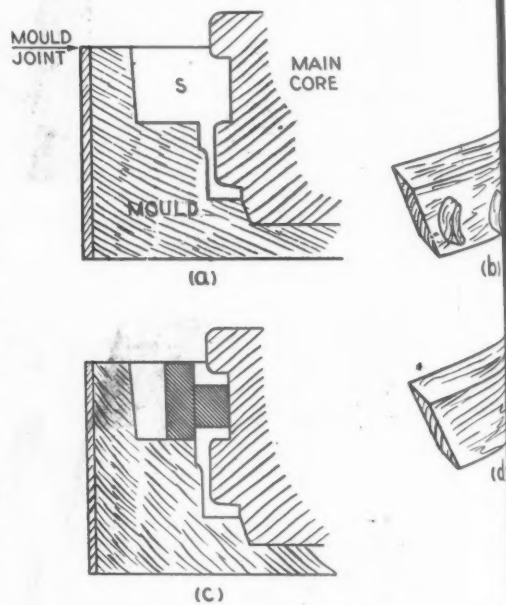


FIG. 1.—MOULD IN WHICH CORE (*b*) IS LOCATED BY FILL-UP CORE.

PUMP BODY.

POURING, READY FOR REMOVAL OF THE CASTING.

National Foundry Craft Training Centre

Full Syllabus for the Four Courses at the West Bromwich Apprentices' Foundry

The National Foundry Craft Training Centre, organised by the West Midland Foundry Advisory Committee, was officially opened on October 6, 1948, by Mr. Fitzherbert Wright, President of the Joint Iron Council.

This Training Centre exists to amplify the training of apprenticed moulders and core-makers. The course is divided into four parts. Boys should come in the first year of their apprenticeship for their first course, and thereon follow at 9 to 10 monthly intervals for the second, third and fourth courses. However, since the training centre opened only in October, 1948, there are vacancies for boys in the second, third and fourth courses as set out below.

The Centre is equipped with its own cupolette (Fig. 1), crucible melting furnace, core-drying stove (Fig. 2), sand mill (Fig. 3), etc. The courses are intensive and are intended to augment the normal training obtained in the boy's own foundry and to widen his vision and understanding of his craft. It has been evident, from talks with the boys who have so far attended the Centre, that it fills a real need.

Four Courses

The curriculum has now been completed. It is divided into four courses, each course lasting for four weeks. Quite apart from the practical work and demonstrations, arrangements are made for lecturers to visit the centre and to give the boys an appropriate talk on the work in operation. As an illustration of this side of the work, lecturers have attended to explain the working of the cupola and general cupola practice, the preparation of sands and the varying practice necessary in different types of work. Lectures dealing with non-ferrous foundry practice and the principles of malleable foundry production have been arranged.

During each term, visits are made to typical foundries, due consideration being given to the course which the boys are attending, so that all lectures and visits help to build up a complete picture for the trainee. It should be emphasised that the whole is kept on a practical basis. The full syllabus of the four Courses is as follows (the talks, discussions and demonstrations are listed under A and the practical work working on jobs, in turn, under B):—

First Term

First Week.

A.—Foundry Centre shop rules; Introduction to course; What is a foundry; Tools used for moulding; Making odd-sides; Moulding on bench and floor; Sand mixing; Care of patterns; Foundry terms; Safety in the foundry; Good citizenship and welfare; Aluminium melting and pouring; Pot-furnace operation.

Film Strip:—Making a simple bench mould.

B.—Sand Mixing; Moulding sands; Moisture testing; Use of tools; Smoothing and levelling sand; Ramming, etc.; Simple bench moulding; Melting aluminium; Pot-furnace operations; Cleaning-up each evening.*

* Cleaning-up each evening is routine procedure throughout the first two terms.

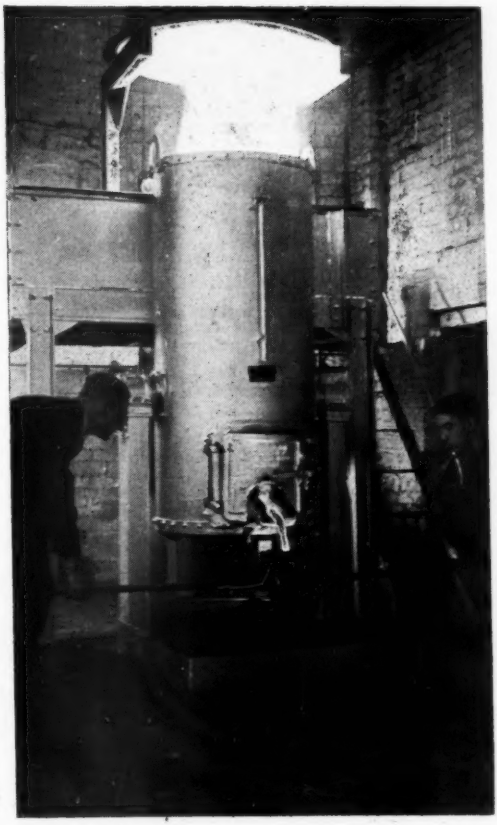


FIG. 1.—A TRAINEE, HELPED BY THE INSTRUCTOR, TAKES MOLTEN METAL FROM THE CUPOLETTE.

Foundry Craft Training Centre

Second Week.

A.—*Sands.*—Moulding and core; Mixtures and uses; Irregular joint moulds; Uses of snap flask boxes; Weighting and clamping; Cupola practice; Cupolette instructions; Ladle lining and drying; Pig irons; Coke and limestone.

Film Strips:—Ramming green sand (box and floor); Forming runners and methods of pouring.

Works Visit.

B.—Progressive bench moulding; Simple open-sand floor moulding; Levelling beds, etc.; Making drawings of cupola; Cupolette operation; Cupolette lining and ladle lining and drying; Melting aluminium; Fettling; Inquest on scrap castings.

Third Week.

A.—Cores, core making, material and tools; Use of cores and vents; Core prints and chaplets; Runners, risers, soundness of castings; False joints; Drawbacks; Scrap diagnosis, causes and cures; Venting (moulds and cores), fettling, etc.

Film Strips:—Cores and core setting; Mould and core ventilation.

Works Visit.

B.—Core sand mixing; Core making and drying; Bench moulds with cores; Floor moulding; Box top sides; Cupolette operations; Melting aluminium and brass; Fettling; Grinding; Inquest on scrap.

Fourth Week.

A.—Melting and pouring temperatures; Elementary metallurgy; Effects of elements in metals; Control tests for metals (contraction, etc.); Use of cover cores; Core assembly; Core dressings; Blackings; Denseners and gaggers and reinforcements; Oil-sand mixtures; Use of carriers; Plate patterns (single and double sides).

Questionnaire.

B.—Sequence of foundry work; Working at a small foundry; Producing castings in aluminium, brass and iron; Chills.

Test:—Mould and core-making.

Second Term

First Week.

A.—Welcome back to Training Centre; Enquire progress made since previous course; Refresher review of First Course; *Non-ferrous foundry practice;* Alloys; Melting, etc.; Various types of furnace, etc.; Coke; good and bad; Properties and routine tests, etc.; Sands; green, dry, core, synthetic; Welfare; Recreation; Film strips.

B.—Sand mixing; Core making; Bench and floor moulding; Melting and casting; Non-ferrous.

Second Week.

A.—Principles of grey iron foundry production; Castings suitable in grey iron; Awkward and irregularly shaped patterns; 3-part boxes; Venting; Review of cupola practice and ladle lining, etc.; Elements in pig iron and their effects; Cupola coke; Good and bad properties and routine tests; runners, gates and risers; Blackboard illustrations.

Works Visit.

B.—Cupolette operations; Cupolette lining and ladle lining, etc.; Bench and floor moulding; Core making; Practice making various types of runners, ingates, etc.; Fettling; Inquest on scrap castings.

Third Week.

A.—Principles of malleable iron foundry production; Types of castings suitable in malleable iron; Elements in malleable pig-iron; Effects; Importance of suitable risers; Pouring practice; Annealing process; Further use of denseners and chills; Film strips and Epidiascope illustrations.

Works Visit.

B.—Working as a small foundry: Castings in non-ferrous and grey iron; Core making and moulding; Bench, floor; Cupolette operations: Fettling; Inquest on scrap castings.

Fourth Week.

A.—Principles of a jobbing foundry; their use and importance; one-off jobs; large castings in floor; core irons; Principles of loam moulding; Strickling, etc.; Film strips; Loam moulding; Routine testing of foundry materials; Metal, coke. sand, core oils, dried core strength, etc.

Questionnaire.

B.—Making one-off jobs; cupolette operations; Simple strickling

FIG. 2.—CORE-MAKING PRACTICE AT THE CENTRE; THE DRYING STOVE IS SHOWN AT THE REAR.

in loam; Making loam mould and core. *Test Mould and Core.*

Third Term

First Week.

A.—Welcome to third course; Shop rules, etc.; enquire progress made since previous courses; Review of first and second courses. *Non-ferrous Foundry Production*; Special lecturer; Alloying; Melting furnaces; Effect of repeated melting; Casting temperatures; De-gasification and de-oxidation; Tensile strength and density; Practical considerations, etc.

Works Visit—Non-ferrous Foundry.

B.—Sand Mixing.—Green sands; Dry sands; Synthetic sands; Core sands; Loam sands. *Moulding.*—Progressive bench moulding; Progressive floor moulding; Loam moulding; Strickling; Drying.

Second Week.

Grey Iron Foundry Production Problems.—Bench; Floor; Machine and Sandslinger, etc.; Loam moulding; Skeleton patterns; Loam core making; Mould core drying; Salvaging casting; Burning; Iron cement; Weldings, etc.; Bakelite (porosity); Film strips.

Works Visit—Grey Iron Foundry.

B.—Core Making.—Progressive cores; Loam core-making; Venting; Reinforcing, etc.; Storing; Green sand cores. *Melting.*—Iron cupolette operations; Aluminium; Pot furnace; Brass; Lining cupolette and ladles, etc.

Third Week.

Malleable Ironfoundry Production Problems.—Comparison of whiteheart and blackheart malleable cast iron; Annealing; Runners; Position of gates; Risers; Soundness, etc.; Scrap diagnosis; Atlas of defects; Epidiascope; Film strips.

Works Visit—Malleable Iron Foundry.

B.—Fettling.—Chipping and bobbing castings. *Inspection.*—Diagnosing faults; Breaking castings; Soundness, etc.

Fourth Week.

A.—Core-shop Production Problems.—Sands, etc.; Core binders; Core dressing; Core assembly; Design: Its effects on foundry problems; Fettling operations: Stripping, chipping, grinding, shot blasting, rumbling barrels; Testing: Dimensional and pressure.

Questionnaire.

B.—Weekly visits to various jobs being made at Rudge Littley's Foundry. *Test Mould and Cores.*

Fourth Term

First Week.

A.—Welcome to Fourth Course; Shop rules; Discipline, etc.; Enquire progress since previous course; Review of first, second and third courses. *Production Planning.*—Foundry organisation; Method of planning for a new job in foundry; Reading drawings, etc.

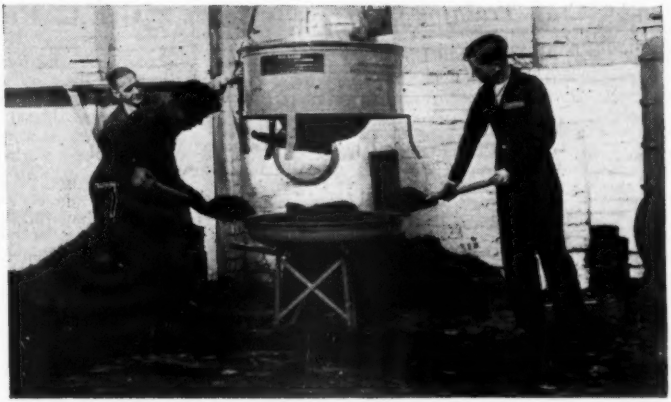


FIG. 3.—APPRENTICES ARE SHOWN LOADING A SPECIAL BARROW IN WHICH SAND-PREPARATION IS CARRIED OUT BY THE PORTABLE MULLING UNIT, CARRIED FROM THE CRANE ABOVE.

Works Visit.

B.—Same as for course three, but more progressive work. Pattern moulding, plate pattern-making, testing castings for faults, etc. Writing brief Papers on various foundry subjects dealt with during courses.

Second Week.

Ferrous Metals.—Range; Effect of carbon; Steel and cast iron defined; Pig iron; Ferro-alloys; Influence of composition; Alloy additions; Refined irons; High duty cast iron. *Pattern Equipment.*—Layout; Spray pattern; Plates; Split mould process; Adaptor frames; Deep-draw machines.

Works Visit.

Third Week.

Heat Treatment of Cast Iron.—Casting stresses; Annealing for machinability; Stress relief; Quenching and tempering; Flame hardening; Non-ferrous heat treatment. *Pattern Equipment,* continued.—Stripping plate; half patterns; Heavy pattern equipment; paintings of patterns, etc.

Works Visit.

Fourth Week.

Review of general foundry practice; Art and craftsmanship; Future of foundry trade; Possibilities of advancement; Particulars of advanced training in special subjects.

Inspection of castings; Visual; Pressure testing; Radiology; Chalk testing; Weight or displacement tests, etc.

Works Visit and Questionnaire.

Vacancies Open

Examination of the foregoing syllabus can leave no doubt that any boy completing the full four terms will have had an invaluable additional training to the normal one given under an apprenticeship.

Foundry Craft Training Centre

The terms now available are as follows:—

No. of term.	Starting date.	Finishing date.	No. of course.
	1949	1949	
9	August 15	September 9	First
10	September 19	October 14	First
11	October 24	November 18	Third
12	November 8	December 23	Fourth
	1950	1950	
13	January 2	January 27	First
14	February 6	March 3	Second
15	March 13	April 7	Third
16	April 17	May 12	First
17	May 22	June 16	Second
18	June 26 (3 weeks' break)	July 21	Third
19	August 14	September 8	First
20	September 11	October 6	Second
21	October 16	November 10	Fourth
22	November 20	December 15	First

It will be observed that the next opportunities to book boys for a first-year course are on August 15, 1949, and September 19, 1949.

The Committee invites applications from employers to enter boys for this course. They also require some boys who have not yet attended the Centre, but who are in their third or fourth years of apprenticeship, to attend on October 24, 1949, for a third-year course, and on November 8 for a fourth-year course. It is advisable that reservations should also be made for courses during 1950.

All applications should be sent to:—Mr. R. Forbes Baird, A.L.A.A., Secretary, West Midland Foundry Advisory Committee, 117, Church Lane, Handsworth Wood; Birmingham 20.

G.E.C. Research Laboratories

Last week, the Research Laboratories of the General Electric Company at North Wembley held a conversazione extending over three days. On Tuesday, the visitors were drawn from the Universities and industrial research laboratories, whilst on Wednesday the technical Press were the guests. They were shown ten well-chosen exhibits covering the main activities of the laboratory.

Powder metallurgy was the subject chosen because, no doubt, it is of more general interest than, say, the excellent work that has been carried out in the field of malleable cast iron. Dr. Ivor Jenkins, the head of the metallurgy department, in the limited time at his disposal dealt with tungsten, molybdenum and their alloys from their ores to the finished articles—wire for lamp filaments and containers for the transport of radium. Outstanding in other departments were the exhibits covering the latest developments in lighting as applied to airfields and the effect on the appearance of foods.

After luncheon, the party was addressed by Sir Harry Railing, who said that the laboratory was spending £1,000,000 a year, and employed a staff of nearly 1,400, of whom 286 were scientists. It was, however, money well spent, and he doubted whether, if research were to become a State monopoly, such excellent results as had been obtained in the past would be forthcoming. The catalogue of achievements which he detailed were indeed so important, that they had materially influenced the winning of the war and had had a profound influence on the progress of electrical engineering.

Book Review

The Technology of Aluminium and its Light Alloys, by Dr. Ing. Alfred von Zeerlander (Third Edition). Published by High Duty Alloys, Limited, Slough. Price £1 1s.

The value of this book is greatly enhanced by the numerous footnotes which have been made by the translator, Mr. J. Juxon Stevens. There is one more which Mr. Stevens might have made in connection with the sand casting of light alloys. The author says that this is the most widely used method of casting. This is not true, so far as this country is concerned; here it takes second place to die casting. The book follows the general pattern of the classical technical text-books, starting as it does with a historical survey of the production of the metal from the ore and wending its way through processes, and properties. Sand castings are covered in about six pages, whilst only forty are devoted to the whole subject of castings. The part devoted to die castings is distinctly better than that dealing with sand castings. The best section of the book are the chapters on rolling and forging. The book runs to about 450 pages; it is well illustrated and excellently indexed. V. C. F.

House Organs

Tandem News, June, 1949. Issued by the Eyre Smelting Company, Limited, Merton Abbey, London, S.W.19.

This issue details a new type of melting pot which the firm has designed and placed upon the market. It is specially useful for the remelting of white metals. Other articles cover the influence of alloying elements in aluminium casting alloys and the drop stamping of aluminium alloys.

Broomwade News Bulletin (Vol. 12, No. 3) for June. Issued by Broom & Wade, Limited, of High Wycombe.

Details are given of a new two-stage compressor recently put into full production; of a plant installed in the Persian oilfields and in a bottling stores. and of the unearthing of the Stepney bomb. On the back cover there are three short illustrated articles on a compressor in the world's largest gas works, a job undertaken outside Buckingham Palace and a new sand rammer for foundry use. The latter weighs 16 lb., has a 4-in. stroke and 1¼ in. bore. It is interesting to note that this new design incorporates notions suggested by the firm's own moulders.

1949 Institute Awards

Cheltenham Presentation

Presentation of the 1949 Awards, particulars of which are given below, took place at the Annual General Meeting of the Institute of British Foundrymen at Cheltenham on June 15, and was briefly reported in last week's issue.

Oliver Stubbs Gold Medal

The award of the Oliver Stubbs Gold Medal to Mr. G. L. Harbach was in recognition of outstanding services by his work on the technical Council and other Committees of the Institute, and in presenting numerous Papers of exceptionally high standard to many Branches.

MR. G. L. HARBACH.

Mr. Harbach, who is chief metallurgist of Worthington-Simpson, Limited, Newark, has been a member of the Institute since 1934 and was President of the Lincoln Section in 1938-9 and of the East Midlands Branch 1942-3. Since 1941 he has been a Branch delegate to the General Council, and he is now serving on the Education Committee. His work for the Technical Council includes membership of the Sub-Committee on Cast Iron for B.S.I. specifications (1934/46). He is also a member of a Sub-Committee of the Joint Standing Committee on Conditions in Iron-foundries, of B.C.I.R.A. Sub-Committees on Engineering Cast Iron and of the A.B.B.F. Technical Committee.

E. J. Fox Gold Medal

The Council of the Institute has awarded the E. J. Fox Gold Medal to Sir Andrew McCance, D.Sc., LL.D., F.R.S., in recognition of the valuable contributions he has made to the progress of steel founding.

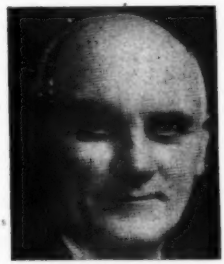
Sir Andrew McCance is deputy chairman and joint managing director of Colvilles, Limited. At the early age of 24, Sir Andrew received the degree of Doctor of Science of London University. In 1919 he founded and became managing director of the Clyde Alloy Steel Company, Limited, and was also advisory metallurgist to D. Colville & Sons, Limited, the board of which he was invited to join in 1930. He is also a director of the Steel Company of Scotland, Limited, the Lanarkshire Steel Company, Limited, Smith and McLean, Limited, and Bruntons (Mussleburgh), Limited, and Chairman of the British Iron and Steel Research Association. In 1940 he was awarded the Bessemer Gold Medal in recognition of his outstanding services in the application of science to the iron and steel industry.

British Foundry Medal and Award

The British Foundry Medal and Award, which may be given annually to the author of the Paper adjudged to be the best presented to the Institute during the preceding year, was awarded to Mr. D. H. Young, of the Scottish Branch, for his Paper, "The Manufacture of Some Large Castings for Marine Engineering."

SIR ANDREW MCCANCE.

Mr. Young began his career as an electrical engineer, but a position at the Clyde foundry of Harland & Wolff, Limited, brought him into close association with foundry work, which appealed to him, and he decided to give up his electrical career and devote himself to the foundry. He studied foundry practice and metallurgy and shortly afterwards took charge of all the metal melting in Clyde foundry. Further changes in the foundry brought Mr. Young into the position of chief assistant foundry manager. He joined the Institute through the Scottish Branch in 1931, and became President of the Branch in 1943.



MR. D. H. YOUNG.

THE BRITISH STANDARDS INSTITUTION are holding their annual general meeting on Wednesday, July 27, at 3 p.m., in the Council Room of the Institution (first floor), 24, Victoria Street, London, S.W.1.

Imports and Exports of Iron and Steel

The following tables, based on Board of Trade returns, give figures of imports and exports of iron and steel in May. Figures for the same month in 1947 and 1948 are given for purposes of comparison.

Total Exports of Iron and Steel.

Destination.	Month ended May 31.		
	1947.	1948.	1949.
	Tons.	Tons.	Tons.
Eire	4,044	5,706	6,259
Channel Islands	752	843	1,024
Gibraltar	46	175	336
Malta and Gozo	172	173	316
Cyprus	165	477	486
British West Africa	4,783	4,767	5,588
Union of South Africa	11,690	10,127	13,746
Northern Rhodesia	418	799	1,321
Southern Rhodesia	616	2,146	6,111
British East Africa	2,416	5,740	5,944
Mauritius	799	537	467
Bahrein, Koweit, Qatar and Trucial Oman	828	1,883	1,790
India	8,838*	6,217	9,796
Pakistan		1,724	5,291
Malaya	2,521	1,228	4,952
Ceylon	1,227	744	2,117
North Borneo	1,389	1,267	2,280
Hong Kong	2,788	2,538	3,672
Australia	3,730	8,270	14,802
New Zealand	3,194	6,104	11,364
Canada	2,317	2,709	10,112
Bermuda	17	40	82
British West Indies	2,440	1,097	3,245
British Guiana	549	483	203
Anglo-Egyptian Sudan	1,085	664	842
Other British countries	349	763	810
Russia	55	4,048	38
Finland	6,459	8,247	5,678
Sweden	10,011	6,777	4,758
Norway	3,964	4,327	7,275
Iceland	1,031	597	743
Denmark	13,745	5,738	8,116
Poland	235	104	16
Germany	86	55	63
Netherlands	10,015	7,790	8,188
Belgium	1,786	714	2,107
France	629	1,704	2,964
Switzerland	1,375	2,008	662
Portugal	1,059	1,270	1,321
Spain	363	519	992
Italy	877	449	398
Hungary	9	7	184
Czechoslovakia	784	132	27
Greece	1,020	455	1,165
Turkey	959	1,528	1,477
Dutch East Indies	5,102	1,322	2,221
Dutch West India Islands	1,246	703	598
Belgian Congo	206	88	94
French W. and Eq. Africa	52	172	8
Portuguese East Africa	513	141	493
Canary Islands	40	800	450
Syria	321	479	138
Lebanon	279	802	742
Palestine (Israel)	2,265	413	1,619
Egypt	6,618	2,495	5,681
Morocco	38	237	393
Iraq	4,984	7,798	4,381
Iran	2,948	12,837	12,716
Burma	4,404	3,115	602
Siam (Thailand)	376	70	311
China	7,492	191	176
U.S.A.	719	132	146
Cuba	81	802	25
Colombia	1,607	366	174
Venezuela	2,251	2,968	3,131
Ecuador	594	263	122
Peru	332	444	423
Chile	609	1,141	544
Brazil	2,180	1,956	1,041
Uruguay	460	1,461	1,168
Argentine Republic	4,071	6,230	2,946
Other foreign countries	2,795	1,133	5,256
Total	164,118	162,249	204,727

* Figures for 1947 relate to British India.

Total Imports of Iron and Steel.

From	Month ended May 31.		
	1947.	1948.	1949.
	Tons.	Tons.	Tons.
Australia	11,556	132	1,684
Canada	14,339	7,858	6,014
Other British countries	479	74	1,068
Sweden	1,137	1,226	825
Norway	3,992	1,686	2,424
Germany	90	834	1,888
Netherlands	1	7,331	9,194
Belgium	2,070	9,029	47,469
Luxemburg	779	—	24,842
France	100	96	17,269
U.S.A.	29,106	4,825	29,613
Other foreign countries	66	163	9,070
Total	63,715	33,254	151,310
Iron ore and concentrates—			
Manganiferous	7,000	4,500	3,550
Other sorts	644,039	766,969	789,302
Iron and steel scrap and waste, fit only for the recovery of metal	48,947	45,078	207,917

Exports of Iron and Steel by Product.

Product.	Month ended May 31.		
	1947.	1948.	1949.
	Tons.	Tons.	Tons.
Pig-iron	4,970	63	867
Ferro-alloys, etc—			
Ferro-tungsten	102	56	59
Spiegeleisen, ferro-manganese	18	40	1,165
All other descriptions	36	51	101
Ingots, blooms, billets and slabs	359	574	594
Iron bars and rods	494	737	278
Sheet and tinplate bars, wire rods	106	559	387
Bright steel bars	2,307	1,514	1,762
Other steel bars and rods	12,477	8,211	12,342
Special steel	1,511	1,949	1,265
Angles, shapes and sections	9,518	7,264	9,727
Castings and forgings	980	595	680
Girders, beams, joists and pillars	3,660	1,631	2,650
Hoop and strip	3,626	2,660	4,050
Iron plate	7	405	372
Steel plate, ¼ in. thick and over	15,031	10,137	22,109
Do., under ¼ in. thick	7,468	10,584	9,403
Galvanised sheets	4,789	6,759	6,580
Tinplates	11,722	18,145	17,087
Tinned sheets	628	523	272
Terneplates	4	—	10
Decorated tinplates	50	97	5
Other coated plates	250	311	853
Cast-iron pipes, up to 6-in. dia.	6,258	4,940	6,863
Do., over 6-in. dia.	3,260	4,801	8,674
Wrought-iron tubes	18,702	22,456	* 24,916
Radiators, central-heatg. boilers	415	252	328
Railway material	11,868	15,966	20,037
Wire	3,308	3,228	4,003
Cable and rope	2,908	2,130	2,384
Netting, fencing and mesh	1,500	1,620	1,575
Other wire manufactures	474	462	777
Nails, tacks, studs, etc.	688	663	629
Rivets and washers	420	438	915
Wood screws	403	371	241
Bolts, nuts and metal screws	2,054	1,526	2,249
Stoves, grates, etc. (excl. gas)	442	918	777
Do., gas	131	219	172
Sanitary cisterns	61	101	194
Baths, sinks, etc.	119	424	987
Fencing material	976	152	1,332
Anchors, etc.	840	946	829
Chains, etc.	867	758	886
Springs	507	599	757
Hollow-ware	4,587	7,554	7,055
All other manufactures*	23,217	18,810	25,549
Total	164,118	162,249	204,727

* Figures for 1949 are not completely comparable with those for previous years.

Marketable Production Needed

Reduce Prices, says Mr. Tanner

At the opening session at Scarborough on June 20 of the national committee meeting of the Amalgamated Engineering Union, Mr. Jack Tanner, president, with reference to engineers' claims for more wages, less hours, etc., said that Britain's economy was at present in no condition to survive a substantial financial drain unless accompanied by a corresponding increase in marketable production. To sell British goods in world markets, prices must be reduced, he declared.

They were now, he said, in a position to plan their future which they had yet to build. If they took full advantage of their new status and strength to enforce maximum concessions now, which could only come out of their capital at this stage, they would consume the only means with which they could build the better life. However much money they had they could not use what was not produced.

During a visit of the Union's delegation to the United States, Mr. Tanner continued, its members were struck by the drive to increase productivity by the American unions and workers, who employed their own production efficiency experts, co-operated with employers, and then went out after their share of increased earnings. Whatever British workers might think of such a policy, they had to face that competition. Like it or not, to sell our goods in the world's markets we must reduce our prices.

There was, undeniably, a case even in existing circumstances for an improvement in their members' standards, but as things were it could not be a very big improvement. They must not be provoked by outside interests into chasing a shadow in mistake for substance. British trade unions originated and developed in a capitalist society, and until fundamental laws of capitalism were changed they could not behave as if they did not exist. Most of their present demands were necessarily of a capitalist nature and they must recognise that and not confuse themselves by imagining they contained some virtuous Socialist principle.

Engineering Councils

On the following day a resolution was put forward concerning the adoption by the general executive council of the Confederation of Shipbuilding and Engineering Unions, of which the A.E.U. is a member, for discussion with the employers, draft proposals for the establishment of a central council and of joint workshop, district, and national councils. These proposals are an alternative to the 1922 agreement with the employers' federation on the avoidance of disputes, which the A.E.U. has wished to change for some time. The resolution expressed dissatisfaction at what was termed unsatisfactory progress in negotiating alternative machinery and urged the more drastic step of giving notice to terminate the agreement.

Most of the speakers supported the resolution as helping to prevent trouble in the factories or as giving powerful A.E.U. leadership within the Confederation. Mr. Tanner, however, asked for its withdrawal, stating that it could more appropriately be brought forward if and when the employers refused the draft constitution of the proposed central council. The resolution was defeated by roughly two to one.

Operation of Nationalisation

"Spirit of Social Service Needed," says Mr. Strauss

At a Labour Party regional conference on "The Nationalisation of the Iron and Steel Industry," in Birmingham, on June 18, the Minister of Supply, Mr. G. R. Strauss, warned that nationalisation might "come to grief" unless it was operated in the right spirit of social service. "I agree with people who say that improvements might be possible in the structure of our nationalised industries," he said. "We are branching out into a realm of political-economic action that has no precedent in any part of the world. We shall find, in the next few years, ways of improving our nationalised industries and I believe that, broadly speaking, the country is proceeding on the right lines.

"It is, however, essential to remember that nothing is accomplished just by a physical change of ownership. You must have the right spirit of social service; the right outlook among everybody in the industry; mutual co-operation among the workers in the industry, the determination to make socialisation a success, to make it a service to serve the country, to realise that the prime object is not the improvement of the standard of life of the workers. The prime purpose in nationalising any industry is to ensure that it would serve the community better."

Mr. Strauss said that there were four main reasons which made the nationalisation of the iron and steel industry essential:—(*a*) It was obviously one of the great basic industries, having a tremendous effect on British industry, the export drive and the development of the colonies; (*b*) it was ridiculous to talk about an industry of such a size as a private venture, when so much of the capital resources of the country was being poured into it; (*c*) the industry was not efficient enough; and (*d*) the need for new capital. Between the wars, he said, it became one of the least efficient iron and steel industries in the world. Subsequent improvements, though aided by the Government since the war, had not been sufficient. Only the people who owned the works were able to do what they liked with them. The industry could obtain new capital fairly easily, but had to pay more interest than would be the case under a State guarantee.

Mr. Strauss emphasised that he had no criticism to make of the management of the industry; its technicians were as capable as any in the world. His criticism was against the owners. Under nationalisation, the Government would not interfere with the day-to-day management, but would see that everybody in it was efficient.

Pig-iron and Steel Production in Great Britain

Summary of April Statistics

The following particulars of pig-iron and steel production in Great Britain have been extracted from the "Statistical Bulletin" for May, 1949, issued by the British Iron and Steel Federation. Table I gives the production of pig-iron and ferro-alloys in April, with the number of furnaces in blast; Table II, production of steel ingots and castings in April, and Table III, deliveries of finished steel. Table IV summarises steel-industry activities during six months ended April, 1949.

TABLE I.—*Weekly Average Production of Pig-iron and Ferro-alloys during April*, 1949. (*Thousands of Tons.*)

District.	Furnaces in blast, 30.4.49	Hematite.	Basic.	Foundry.	Forge.	Ferro-alloys.	Total.
Derby, Leics., Notts, Northants, and Essex	23	0.9	13.7	21.8	1.8	—	38.2
Lancs. (excl. N.W. Coast), Denbigh, Flints. and Cheshire .. Yorkshire (incl. Sheffield, excl. N.E. Coast) ..	6	—	6.7	—	—	1.4	8.1
Lincolnshire ..	15	—	25.2	—	—	—	25.2
North-East Coast	23	8.2	35.1	0.3	—	1.5	45.1
Scotland	9	0.8	10.4	3.1	—	—	14.3
Staffs., Shrops., Worcs., and Warwick ..	9	—	9.4	1.4	—	—	10.8
S. Wales and Monmouthshire	8	4.2	18.7	—	—	—	22.9
North-West Coast	7	13.5	—	0.2	—	0.3	14.0
Total ..	100	27.6	119.2	26.8	1.8	3.2	178.6
March, 1949* ..	99	27.7	116.2	29.8	2.2	2.9	178.8
April, 1948 ..	101	26.0	124.2	26.0	2.1	3.1	181.4

* Five weeks.

TABLE III.—*Weekly Average Deliveries of Non-alloy and Alloy Finished Steel.* (*Thousands of Tons.*)

Product.	1947 (53 weeks).	1948.	1948. April.	1949. Mar.*	1949. April.
Non-alloy Steel:—					
Heavy rails and sleepers	7.6	8.9	8.4	10.1	9.0
Heavy and medium plates	31.6	36.2	37.8	42.5	39.1
Other heavy products	31.8	34.7	37.5	37.2	34.8
Light rolled products§	52.9	59.5	63.5	49.2	44·0
Hot-rolled strip ..				18.1	17.5
Cold-rolled strip ..	4.6	4.7	5.2	5.1	4.6
Bright steel bars ..	4.8	6.0	6.2	6.3	5.7
Sheets, coated and uncoated	24.3	26.3	28.1	29.1	25.1
Tin, terne and blackplate	12.1	13.5	14.0	14.7	12.9
Tubes, pipes and fittings	13.5	15.1	15.9	19.9	17.8
Wire	10.8	12.8	12.7	15.5	14.1
Tyres, wheels and axles	3.5	3.9	4.0	4.3	3.9
Forgings	5.0	6.0	5.9	6.8	5.9
Castings	3.0	3.5	3.4	3.9	3.4
Total	205.5	231.1	242.6	262.7	238.4
Alloy Steel†:—					
Tubes and pipes ..	0.3	0.4	0.5	0.7	0.6
Bars, sheets, strip and wire	3.7	4.7	4.4	5.4	4.9
Forgings	1.8	2.5	2.4	3.0	2.5
Castings	0.6	0.7	0.7	0.7	0.6
Total	6.4	8.3	8.0	9.8	8.6
Total U.K. production‡	211.9	239.4	250.6	272.5	247.0
Less intra-industry conversion ..	19.2	29.0	29.2	36.8	31.9
Net U.K. deliveries ..	192.7	210.4	221.4	235.7	215.1
Add imported finished steel	2.2	3.4	3.6	6.2	10.7
Total deliveries of finished steel ..	194.9	213.8	225.0	241.9	225.8

* Five weeks.
† Excludes high-speed steel. ‡ Includes finished steel produced in the U.K. from imported ingots and semi-finished steel.
§ Excl. wire rods and alloy steel bars, but incl. ferro-concrete bars.

TABLE II.—*Weekly Average Production of Steel Ingots and Castings, April*, 1949. (*Thousands of Tons.*)

District.	Open-hearth. Acid.	Open-hearth. Basic.	Bessemer.	Electric.	All other.	Total. Ingots.	Total. Castings.	Total ingots and castings.
Derby, Leics., Notts., Northants and Essex ..	—	—	9.8 (Basic)	1.5	0.1	10.9	0.5	11.4
Lancs. (excl. N.-W. Coast), Denbigh, Flints., and Cheshire .. .. Yorkshire (excl. N.-E. Coast and Sheffield) ..	2.1	21.4	—	1.2	0.4	24.2	0.9	25.1
Lincolnshire	—	29.8	—	—	0.1	29.8	0.1	29.9
North-East Coast	1.4	61.8	—	0.6	0.5	62.9	1.4	64.3
Scotland	5.5	40.8	—	1.9	0.7	47.2	1.7	48.9
Staffs., Shrops., Worcs. and Warwick ..	—	13.9	—	0.6	0.6	13.9	1.2	15.1
S. Wales and Monmouthshire	9.1	48.3	4.8(Basic)	0.9	0.1	62.8	0.4	63.2
Sheffield (incl. small quantity in Manchester) ..	7.6	24.9	—	7.1	0.6	38.6	1.6	40.2
North-West Coast	0.5	2.0	4.0 (Acid)	0.2	0.1	6.7	0.1	6.8
Total	26.2	242.9	18.6	14.0	3.2	—	—	304.9
March, 1949*	29.1	244.4	20.3	15.5	3.6	304.1	8.8	312.9
April, 1948	28.4	228.7	18.7	14.6	3.5	285.5	8.4	293.9

* Five weeks.

(*Continued at foot of facing page.*)

Obituary

MR. WILLIAM BELL, a director of Bertrams, Limited, engineers and ironfounders, of Edinburgh, died suddenly on June 15.

MR. FRANK HERBERT EGGLESHAW, locomotive works manager at Doncaster Railway Plant Works for 22 years until his retirement in September, 1945, died on June 15 at the age of 70.

MR. WILLIAM BARNES, managing director of Charles Howson & Company, Limited, shiprepairers and engineers, of Liverpool, and chairman of the Premier Electric Welding Company (Mersey), Limited, died recently. He was 81.

MR. JAMES TYGHE ROLLASON, who until his retirement several years ago had for some 65 years been a well-known figure in Shropshire and the adjoining counties as a scrap-iron dealer, died on June 9 following a road accident. He was 87.

MR. PERCY F. C. WILLCOX, senior partner in the firm of Willcox Bros., consulting engineers and propeller makers, of Sunderland, has died at the age of 82. He was a founder member of the Society of Consulting Marine Engineers and Ship Surveyors, and a member of the North East Coast Institution of Engineers and Shipbuilders.

MR. FRANK OLIVER HUGHES, secretary of A. C. Wickman, Limited, machine-tool specialists, of Coventry, since 1932, and for some years a director of Hughes Engineering Company (Leicester), Limited, has died at the age of 57. He was formerly chief accountant of Alfred Herbert, Limited, machine-tool makers, of Coventry.

MR. CHARLES DAY, who died on June 18 at the age of 83, was chairman of Mirrlees, Bickerton & Day, Limited, oil-engine and pump manufacturers, etc., of Stockport, and vice-chairman of the Mirrlees Watson Company, Limited, engineers and founders, of Glasgow. He was a past-president of the Institution of Mechanical Engineers, of the Whitworth Society, and of the Manchester Association of Engineers. Besides being the author of many Papers read before engineering societies, he published "The Steam Engine Indicator and Engine Boiler Testing."

Shortage of Generating Plant

B.E.A.'s Expenditure on Capital Development

Pointing out that Britain's shortage of generating plant was extremely serious, and that if the coming winter is really severe, in the absence of load spreading, we shall still be behind the potential demand, Lord Citrine, chairman of the British Electricity Authority, in his presidential address to the British Electrical Power Convention at Torquay, said that the Government's decision to cut the plant manufacturing programme had been regarded by the Authority with dismay. There was no hope of overtaking the shortage unless in 1951 and 1952 capacity could be raised.

Lord Citrine said that great capital developments must be undertaken and the Authority contemplated spending £400,000,000 on this in the next five years. More power stations were urgently needed. They were faced with the position that over one-third of heavy electrical generating machinery, boilers and plant was being exported. The prospect of Britain becoming economically self-supporting by the time Marshall aid finished in 1952 depended on the extent to which generating capacity could be increased.

There were three major requirements—the need to have a clear field for planning ahead, an adequate supply of capital, labour and materials, and for the utmost efforts to be made with planned production.

Committee on Trade Profits

In accordance with his Budget speech, the Chancellor of the Exchequer has appointed a committee, under the chairmanship of Mr. J. M. Tucker, K.C., with the following terms of reference:—"To inquire into the method of computing net trade profits for the purpose of charging them to income tax and to consider the question of the basis period to be taken in assessing the tax on the profits so ascertained; to inquire into the method of computing net profits for the purpose of charging them to profits tax; and to report upon any alterations of the tax law which may be desirable."

PIG-IRON AND STEEL PRODUCTION IN GREAT BRITAIN (*Continued from previous page*).

TABLE IV.—*General Summary of Pig-Iron and Steel Production.* (*Weekly Average in Thousands of Tons.*)

Period.	Iron-ore output.	Imported ore consumed.	Coke receipts by blast-furnace owners.	Output of pig-iron and ferro-alloys.	Scrap used in steel-making.	Steel (incl. alloy)			
						Imports.‡	Output of ingots and castings.	Deliveries of finished steel.	Stocks.†
1938	228	89	—	130	118	16	200	—	—
1947 (53 weeks)	209	136	165	147	145	8	240	195	797
1948	252	172	200	178	174	8	286	214	1,028
1948—November	264	174	205	185	187	13	303	229	1,002
December*	253	162	201	176	173	10	282	216	1,028
1949—January	269	163	202	178	178	8	289	224	1,019
February	267	160	201	181	198	13	311	236	1,000
March*	263	158	198	179	199	20	313	242	1,031
April	255	163	198	179	192	20	305	226	1,097

* Five weeks. † Stocks at the end of the years and months shown. ‡ Weekly average of calendar month.

News in Brief

R. B. TENNENT, LIMITED, proposes to erect new buildings at Whifflet Foundry, Coatbridge, Lanarkshire.

DURING THE first five months of this year, 12 vessels of 101,220 tons gross were launched on the Tyne, compared with 19 vessels of 71,966 tons gross last year.

FOR EMPLOYING three boys under the age of 16 on a night shift, Birchley Rolling Mills, Limited, Oldbury, has been fined £5 in each case, with 27s. special costs.

PLANS FOR A new factory in Colquhoun Street, Stirling, submitted by the Holdfast & Ironwork Company, Limited, Glasgow, were approved by Stirling Dean of Guild Court on June 16.

ROCKWELL MACHINE TOOL COMPANY, LIMITED, Wembley, has acquired the sole selling rights in the United Kingdom for the Sentinel 25-ton power press manufactured by Sentinel (Shrewsbury), Limited.

THE OFFICES of the Briton Ferry Steel & Tinplate Agency, Limited, are now at 2, Caxton Street, London, S.W.1. The telephone number is Trafalgar 2614 and the telegraphic address " Feritinpla, Sowest, London."

THE AMALGAMATED ENGINEERING UNION is providing 250 scholarships for members to attend summer schools this year. Of this number, 104 students will attend the A.E.U. summer schools, which extend over four weeks.

A BIG WOOD STORE at the Northbrook Works of George Hattersley & Sons, Limited, textile machinists, ironfounders, etc., of Keighley, Yorks, was the scene on June 20 of one of the biggest fires in the town for a long time.

A STEEL-FRAMED BUILDING is to be added to the enamelling shop of the Forth & Clyde & Sunnyside Iron Companies, Limited, Falkirk. A brick-built laboratory is also to be erected, the total estimated cost being £1,900.

BARTRAM & SONS, LIMITED, Sunderland, has received an order for a single-screw cargo motorship of 8,800-ton dw. for Dutch owners. The vessel's propelling machinery will be built by the North Eastern Marine Engineering Company (1938), Limited.

ONE OF THE few surviving beam engines, built in the early 19th century, is at the Dudley works of M. & W. Grazebrook, Limited, where it was installed in 1817 to pump air into blast furnaces. The engine, which has had a working life of almost a century, is to be preserved.

THE PATTERNSHOP at the Claremont Ironworks of Geo. Swift & Sons, Limited, Halifax, Yorks, was destroyed by fire on June 21. Only slight water damage was done to the remainder of the works, and some departments were working normally later the same day.

H.M.S. WARSPITE, the 30,000-ton battleship, which has been aground for two years at Prussia Cove, Cornwall, has been sold as scrap to the Wolverhampton Metal Company, which hopes to refloat her. The vessel was bound for Clyde shipbreakers when she ran aground in April, 1947.

JOHN BROWN & COMPANY, LIMITED, Clydebank, has received an order from the Railway Executive for a train ferry of about 3,150 tons gross for the Harwich-Zeebrugge service. The vessel will be fitted with Sulzer Diesel engines, and will be capable of carrying about 58 standard freight wagons, or 36 of the largest type of ferry wagons.

SUBJECT TO THE approval of the Capital Issues Committee, Banister, Walton & Company, Limited, constructional engineers, of Manchester, proposes to issue as capital bonus one new 5s. ordinary share for each share held. The company's authorised capital will be raised from £150,000 to £500,000. The present amount in issue is £122,637.

THE DIRECTORS OF International Combustion, Limited, propose to make a bonus share issue of three new 5s. ordinary shares for every two held, subject to permission of the Capital Issues Committee. The present authorised and issued capital structure is composed of 150,000 6 per cent. £1 cumulative preference shares and £351,698 in 5s. ordinary units.

ASSOCIATED BRITISH OIL ENGINES, LIMITED, has received an order for three Mirrlees " HFS8 " eight-cylinder, turbo-charged engines rated at 1,320 b.h.p. at 375 r.p.m. for direct coupling to 920-kw. Brush alternators, to be supplied on a separate contract, from the Cairns (Australia) Regional Electricity Board. This is a repeat order and will make a total of 10 similar engines supplied for the Board. Six engines are already in course of installation and the seventh is being shipped shortly.

THE NEWALL ENGINEERING COMPANY, LIMITED, Old Fletton, Peterborough, is passing the dividend on the 7 per cent. preferred ordinary shares in respect of the year to March 31 last. In his review accompanying the accounts, the chairman, Mr. S. Player, states that the directors are of opinion that, having regard to the desirability of conserving the liquid resources, no payment of dividends in respect of preferred ordinary shares or ordinary shares should be recommended on this occasion.

THE DIRECTORS of Midland Iron & Hardware (Cradley Heath), Limited, propose to make a bonus issue of three 1s. ordinary shares for each share held. Issued ordinary capital will thus be increased to £123,216. Treasury consent has been given. An extraordinary meeting is also to be held, on July 27, to increase the authorised capital to £300,000 in 300,000 10s. cumulative preference and 3,000,000 1s. ordinary. It is proposed to issue £50,000 of the preference shares to which existing shareholders will be given preferential allotment.

THE RESULTS of a *questionnaire* circulated to its members by the Engineering Industries Association to ascertain the extent of hidden unemployment caused by the maintenance of labour forces in excess of the requirements of current orders show that there is a certain amount of hidden unemployment, but that it is by no means general. Of between 350 and 400 replies received, rather more than 10 per cent. showed that firms were keeping men on, although not all were fully employed. Some others had ceased working overtime and in a few cases shift working. Actual unemployment about balanced itself.

THE ATTEMPT to nationalise iron and steel must be defeated, and the threat of further nationalisation of successful industries removed, said Sir David Maxwell Fyfe, M.P., in a speech at Fort William on June 18.

In the case of industries already nationalised, the problem had to be judged by the immediate needs of production. He said he believed that the urgent problem with regard to coal and railways was not an immediate change of ownership, but the restoration of power and responsibility to district management which understood local problems. Only by decentralisation and the removal of frustration by London would a new keenness come into both management and worker.

IMPORTS OF iron and steel and manufactures (excluding cutlery and machinery) into the Republic of Ireland in April were valued at £568,312, against £592,270 in April, 1948. The total value for the first four months was £2,232,505 (£2,298,910). The April imports were made up of:—Pig-iron, 447 tons, valued at £12,623, against 700 tons, valued at £14,619, in April 1948; iron bars and rods, 189 tons, £7,091 (161 tons, £6,046); steel bars and rods, 924 tons, £31,777 (1,700 tons, £66,766). Total exports of metalliferous ores, metals and manufactures during April, 1949, were valued at £55,618, compared with £47,668 in April, 1948, bringing the total value of these exports for the first four months of the year to £157,862 (£95,540).

THE EUROPEAN SHIPBUILDING INDUSTRY will very probably be faced with a critical year in 1951-52, is the view of Mr. Per Selvig, a Norwegian shipping expert, who has just completed a tour of shipyards in eight European countries. He says that most European yards have orders which will give employment for another two years, but very few new orders are being received, and in some cases they have stopped altogether owing to the sharp drop in freight rates and mounting costs. Mr. Selvig thinks that the crisis may come rather later in Norway than elsewhere, most of the Norwegian yards having orders sufficient to maintain employment for four or five years ahead, while in Sweden the yards are in rather a unique position owing to their high degree of efficiency.

Gazette

MR. M. C. HOLT, 83, Ebury Street, Eaton Square, London, S.W.1, has been appointed liquidator of G. & G. Electrical Engineers, Limited.

FYLDE SWITCHGEAR COMPANY, LIMITED, is being wound up voluntarily. Mr. R. H. Green, 23, Woodland Grove, Blackpool, is the liquidator.

FOSTER & PULLEN, lighting and heating engineers, is being wound up voluntarily. Mr. J. R. Haygarth, 10, East Parade, Leeds, is the liquidator.

JENCO ENGINEERING COMPANY, LIMITED, is being wound up voluntarily. Mr. R. A. Haigh, Court Chambers, Friar Lane, Leicester, is the liquidator.

MR. D. A. CLARKE, 9, Basinghall Street, London, E.C.2, has been released from his position as liquidator of the Lawson Engineering Company, Limited.

EAST POOL & AGAR, LIMITED, tin miners, etc., is being wound up voluntarily. Mr. G. A. Anderson, 20, Copthall Avenue, London, E.C.2, is the liquidator.

WALTHAM CHASE ENGINEERING COMPANY, LIMITED, is being wound up voluntarily. Mr. W. H. Green, 21, Cumberland Place, Southampton, is the liquidator

AYRTON, COHEN & COMPANY, LIMITED, metal merchants, is being wound up voluntarily. Mr. W. D. Gibbs and Mr. R. H. Steward, 12, Greek Street, London, W.1, are the liquidators.

Tin Industry Prospects

Commodity Control Agreement Sought

At the fourth meeting of the Tin Study Group, which ended in London on June 22, a new Working Party was established to review prospects of the tin industry, and to draft a commodity control agreement which, if acceptable to all member governments, could go before an International Commodity Conference convened by the United Nations. It is hoped that the Working Party will be able to report within three months.

Statistics (in tons) prepared by the Group of future world output and consumption are:—

	Production.	Use.*	Excess production.*
1949	170,000	138,000	32,000
1950	190,000	158,000	32,000
1951	205,000	162,000	43,000

* Commercial purposes.

Outputs are based on the assumption that there will be "no fundamental alteration in economic, social, and political conditions in producing territories," and consumption "on maintenance of full industrial activity in all consuming countries, availability of foreign exchange for purchasing full requirements, no restrictions on end-uses of tin after 1949, and no curtailment of consumption as a result of shortages of material ancillary to its use." The figures take no account of the U.S.S.R.

An official statement points out that the estimates indicated an existing and growing excess of production over commercial consumption, but took no account of purchases for non-commercial purposes. The Group had insufficient information before it to enable it to say to what extent and for what period of time such purchases would be effective in averting disequilibrium. It did, however, understand that there was a reasonable prospect that such purchases might maintain an equilibrium for an appreciable period ahead. It was unable to determine how long this period might be, but considered that a burdensome surplus of the kind which could be regarded as justifying the conclusion of an international commodity control agreement might well arise within the next five years.

Contract Open

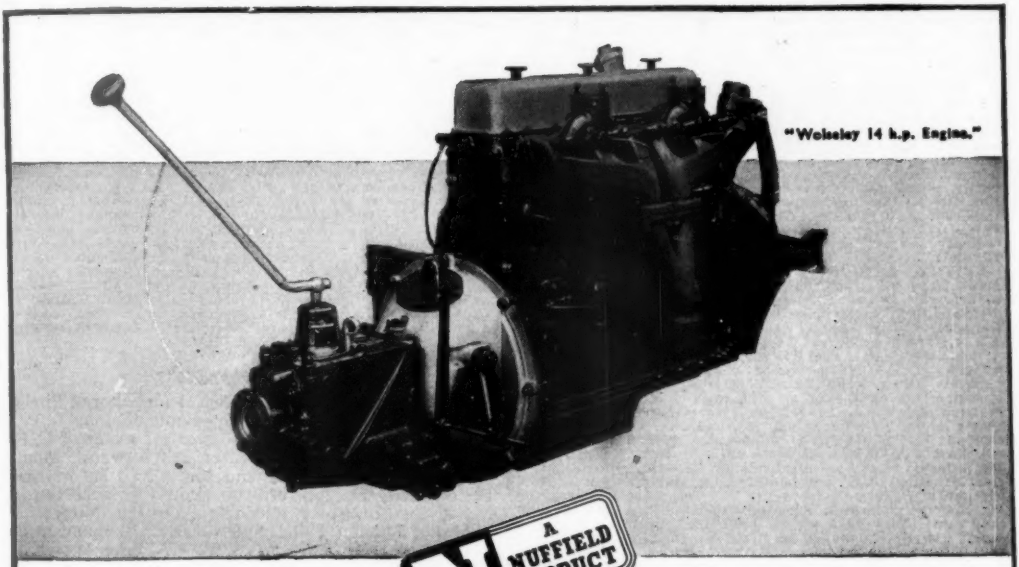
The dates given are the latest on which tenders will be accepted. The addresses are those from which forms of tender may be obtained. Details of tenders with the reference E.P.D. or C.R.E. can be obtained from the Commercial Relations and Exports Department, Board of Trade, Thames House North, Millbank, London, S.W.1.

SANDY, July 25—Provision, laying and jointing of about 1¼ miles of 9-in. and smaller sewers and rising mains, etc., for the Urban District Council. Binnie, Deacon & Gourley, Artillery House, Artillery Row, Westminster, London, S.W.1. (Fee, £5, returnable.)

Company News

(Figures for previous year in brackets.)

MILNER'S SAFE COMPANY—Dividend of 7½% (same).
INBUCON—Final dividend of 10% (8%), making 12% (10%).
SHEFFIELD STEEL PRODUCTS—Dividend of 15% (same).
C. LINDLEY & COMPANY—Interim dividend of 5% (same).
WAILES DOVE BITUMASTIC—Interim dividend of 7½% (same).
RUSTON & HORNSBY—Dividend of 12½% (same) on larger capital.
INTERNATIONAL COMBUSTION—Interim dividend of 10% (same).
GEORGE SPENCER, MOULTON & COMPANY—Dividend of 7½% (5%).
JOHN BOOTH & SONS (BOLTON)—Final dividend of 15%, making 25% (same).
MORGAN CRUCIBLE COMPANY—Final dividend of 8¾%, making 12½% (same).
ARMSTRONG SIDDELEY DEVELOPMENT COMPANY—First interim dividend of 10% (same).
BANISTER, WALTON & COMPANY—Final dividend of 20% and bonus of 5%, making 30% (same).
ASSOCIATED AUTOMATIC MACHINES—Dividend of 6% for 1938 (6% for nine months to December 31, 1947).
HACKBRIDGE & HEWITTIC ELECTRIC COMPANY—Final dividend of 8½% (8%), making 12½% (12%) on increased capital.
BENTLEY ENGINEERING COMPANY—Trading profit for 1948, £162,710 (£96,384); dividend of 40% (same); forward, £94,022.
GRAYSON, ROLLO & CLOVER DOCKS—Final dividend of 10%, making 12½% (same for 15 months, plus share bonus of 50%).
WILLIAM JACKS & COMPANY—Second interim dividend of 15% (22½%), making 25% (22½%) on larger capital. The directors state that there will be no further payment for 1948.
F. H. LLOYD & COMPANY—Second interim dividend of 7%, making 10% (same). It is not the intention of the board to recommend payment of any further dividend for the year.
HARRISON, McGREGOR & GUEST—Net profit for 1948, after depreciation, interest, etc., £33 (loss £57,953, plus preference dividends £5,500); transfers from reserves, etc., nil (£67,145); balance forward, £5,362 (£5,329).
W. N. FROY & SONS—Net profit for 1948, after depreciation, etc., £100,912 (£109,546); to profits tax, £13,634 (£16,380); income tax, £41,210 (£43,424); to reserve, £30,000 (£25,000); dividend of 15% (same); forward, £43,157 (£40,289).
WARD & GOLDSTONE—Net profit for the year ended March 31, after depreciation, tax, etc., £108,080 (£240,124); brought in, £299,607 (£153,514); final dividend of 30%, making 50% (same); tax reserve, nil (£65,000); general reserve, £180,000 (nil); forward, £198,656.
BRITISH VACUUM CLEANER & ENGINEERING COMPANY—Net profit to September 30, 1948, after depreciation, etc., £52,110 (£73,611); to tax, £28,000 (£36,109); staff pension fund, nil (£5,000); 5½% preference dividend, £4,538 (£4,537); ordinary dividend of 20% (same); forward, £29,369 (£26,297).
GEO. ADLAM & SONS—Trading profit to March 31, £48,612 (£32,935); other income, £45 (£126); to depreciation, £4,615 (£4,175); directors' fees, £1,050 (same); audit, £210 (same); interest, £5,309 (£1,956); dividends: preference £4,400 (£3,667), ordinary of 50% (same); tax, £21,367 (£10,624); forward, £10,815 (£5,984).
UNION STEEL & MANUFACTURING COMPANY (made public April 30, 1948)—Net profit to March 31, after depreciation, taxation, etc., £27,102 (£43,373); to preference dividends, £2,420; ordinary dividend of 27½%, £12,100; forward, £15,795 (£3,213 after deducting capitalisation of £85,000 (part of undistributed profits), bonus tax £8,500, and stamp duties, etc., £434).
SANDERSON BROS. & NEWBOULD—Consolidated profit for the period ended December 31, 1948, £129,676; other income, £784; to directors' fees and salaries, etc., £12,700; debenture interest, £3,804; depreciation, £10,536; tax, £48,900; leaving £54,520; forward to subsidiaries, £15,918; available for parent, £38,602; brought in by parent, £53,746; making £92,348; final dividend of 5%, making 10% (same); forward, £78,066.
HALLAMSHIRE STEEL & FILE COMPANY—Trading profit and other income for the year to March 31, £155,786 (£133,411); to depreciation, £21,200 (£15,425); directors' emoluments, £10,962 (£10,992); taxation, £77,075 (£62,573); net profit, £46,549 (£44,421); to contingencies reserve, £15,000 (nil); deferred repairs, £5,000 (same); stock reserve, nil (£10,000); dividend and bonus of 70% (same); forward, £22,772 (£22,210).
COLEY METALS—Consolidated trading profit to January 31, £62,015 (£69,271); sundry income, £14 (£128); to directors' emoluments, £7,160 (£6,830); depreciation, £5,283 (£4,006); auditors' remuneration, £462 (£473); registrars' fee, £150 (same)'; miscellaneous expenses, £42 (£37); leaving £48,912 (£57,903); to tax, £27,022 (£31,497); dividend of 10% and bonus of 2½% (same); off shares in subsidiary, £1 (nil); forward, £28,331 (£20,192).
MASON & BURNS—Trading balance for the year to March 31, £34,969 (£30,121); to charging directors' emoluments, £7,763; audit, £200; other income, £251 (£204); to depreciation, £3,461 (£2,039); written off lease, £800 (£100); taxation, £18,000 (£15,342); net profit, £12,959 (£12,844); tax reserve adjustment, £407 (nil); brought in, £7,380 (£7,800); to general reserve, nil (£10,514); dividend of 10% (same) and bonus of 10% (nil); forward, £15,246.
ROLLS-ROYCE—Group trading profit for 1948, £827,528 (£659,322); to depreciation, £262,642 (£245,706); provision for liabilities not capable of exact ascertainment, £33,263 (£79,216); directors' remuneration, £35,381 (£31,034); written off investment in associated company, nil (£75,000); estimated profits tax, £164,700 (£158,700); income from investments, £9,541 (£9,751); dividend of 20% (same); estimated income tax, £516,650 (£485,014); general reserve, nil (£8,891); forward, £411,572 (£217,653).
S. RUSSELL & SONS—Trading profit to March 31, £134,160 (£113,638); other income, £1,185 (£1,327); to directors' fees and emoluments, £21,517 (£20,850); audit, £400 (£300); depreciation, £18,787 (£11,828); tax, £50,000 (£44,150); profit, £44,641 (£37,337); to new issue expenses, £13,247 (£450); general reserve, £14,849 (£24,000); staff pension reserve, nil (£5,000); preference dividends, £4,512; ordinary dividend of 15% (100% on smaller capital); forward, £5,775 (£3,642). The company was made public in July, 1948.
GEO. W. KING—Trading profit for 1948, £109,331 (£85,500); to directors' emoluments, £11,625 (£8,816); depreciation of fixed assets, £14,756 (£10,265); written off patents, £524 (£440); audit, £2,325 (£1,885); tax, £37,981 (£27,968); special expenses, removal of plant, etc., £16,251; provision for further such expenses and taxation on stock surplus, £30,000; surplus on ascertainment of stock, £29,276; leaving £16,975 (£9,891); dividend of 12½% (same); reserve, £4,265 (£5,000); staff welfare, £2,500 (nil); forward, £25,745 (£23,615).
SHIP CARBON COMPANY OF GREAT BRITAIN—Net trading profit for 1948, £193,967 (£168,833); interest, £1,041 (£3,021); E.P.T. provision no longer required, £1,923 (nil); stock reserve no longer required, £15,000 (nil); to directors' emoluments, £7,055 (£5,500); fees, £1,331 (£1,246); auditors' remuneration, £341 (same); depreciation, £8,500 (£9,250); loss on sale saving bonds, £586 (nil); income tax, £66,500 (£67,000); profits tax, £21,000 (£18,600); profit, £106,618 (£69,917); dividend of 15% (10%); general reserve, £85,000 (£50,000); forward, £12,096 (£14,403).
ANDERSTON FOUNDRY COMPANY—Net profit for the year to March 31, after depreciation, taxation, etc., £21,761 (£17,340); brought in, £23,552 (£22,178); to stock depreciation provision, £2,500 (£5,000); general reserve, £2,500 (same); directors' remuneration, £840 (same); benevolent fund, £200 (same); final dividend of 7s. 6d., making 9s. (same); forward, £31,849. Balance of investment reserve brought forward, £9,462 (£13,212); out of this a distribution to members of 2s. 6d., tax free, is recommended, requiring £3,750 (same), leaving the balance at £5,712.
WHESSOE—Trading profit, etc., to March 31, 1949, after deducting £35,175 written off erection and other equipment, £347,479 (£175,448); other income, £112 (£65); to depreciation, £16,386 (£12,706); directors' emoluments, £20,027 (£12,314); welfare schemes and staff pension fund and bonus, £19,525 (£15,985); taxation, £165,104 (£73,829); net profit, £126,549 (£60,679); provisions no longer required, £50,787 (nil); to buildings and plant replacement reserve, £50,000 (nil); general reserve, £75,000 (£25,000); final dividend of 30%, making 40% (same); forward, £52,435 (£49,599).
ENFIELD CABLES—Consolidated trading profit and rents for 1948, £365,341 (£285,117); trade investments, £9,542 (£11,930); other investment interest, £28 (same); to depreciation of fixed assets, £38,970 (£37,799); interest, £11,617 (£6,551); directors' emoluments, £14,618 (£11,969); past directors' pensions, £2,250 (same); audit fee, £857 (£730); subsidiaries'



Using

STANTON-DALE

REFINED PIG IRON

USED AND RECOMMENDED
FOR ALL HIGH-DUTY
ENGINEERING CASTINGS

THE STANTON IRONWORKS COMPANY LIMITED, Nr. NOTTINGHAM

preliminary expenses, £224 (nil); tax, £167,147 (£129,618); leaving £139,228 (£108,158); brought in, £23,752 (£8,644); special receipts relating to earlier years, £46,986 (nil); final dividend of 32%, making 72% (same); general reserve, £127,600 (£51,800); forward to parent £22,011 (£14,647), to subsidiaries £19,105 (£9,106).

NEWALL ENGINEERING COMPANY—Consolidated trading balance to March 31, £92,820 (£89,112); to depreciation and written off fixed assets, £34,027 (£35,512); directors' fees, £1,332 (£1,300); directors' remuneration, £12,349 (£14,883); auditors' remuneration, etc., £946 (£932); interest, £13,709 (£8,245); leaving £30,457 (£28,240); credits in respect previous periods, £4,706 (£11,401); to dividends to minority holders in partly owned subsidiary, £430 (£445); payment on termination directors' service agreement, £3,000 (nil); leaving £31,733 (£39,196); to profits tax, £4,550 (£6,000); income tax, £11,741 (£15,271); preference dividend, £4,950 (same); preferred ordinary and ordinary dividend, nil (£9,900); forward, £31,253 (£20,761).

BRITISH TIMKEN—Consolidated accounts for 1948 show profit from manufacturing and trading, £869,445 (£726,200); to depreciation and amounts written off, £186,747 (£160,425); directors' emoluments, £21,956 (£19,411); non-recurring professional charges, £15,381 (£5,880); loan and bank interest, £12,891; audit, £1,930 (£1,968); taxation, including £985 South African tax (£483), £343,983 (£292,901); net profit of holding company, £235,250 (£196,520); net profit of subsidiaries, £57,879 (£36,204); brought in, £189,518 (£151,788); to deferred repairs provision, nil (£100,000); general reserve, £149,000 (£61,994); preference dividend, £13,040 (preference shares issued during year); ordinary dividend of 15% (same); forward holding company £93,987 (£53,777), subsidiaries £193,620 (£135,741).

SPEAR & JACKSON—Group trading profit for 1948, £142,091; tax deducted from final dividends for 1947 and adjustments in reserves prior years' tax liabilities, £6,319; dividend from a subsidiary, £2,233; dividends and interest, £5,867; interest on tax reserve certificates, £914; to depreciation written off, less profits on disposal of fixed assets, £13,153; directors' remuneration, £14,399; Dominion and foreign tax, £6,882; profits tax, £16,250; income tax, £35,000; tax on dividend from a subsidiary, £335; net profit, £71,405; to proportion profits of subsidiaries attributable to outside holders, £2,446; proportion attributable share held by Spear & Jackson, £12,233; parent company's balance, £56,726; to general reserve, £15,000; special reserve, £25,000; dividend of 15%; forward, £25,243 (£24,329).

HAYDEN-NILOS (made public February 25, 1948)—Trading profit of parent company £99,452 (£49,714), Nilos £73,702 (£64,737); from investments, £291 (nil); from acquired undertakings, nil (£37,382); making £173,445 (£151,833); to depreciation, £3,553 (£2,675); directors' fees, £1,403; management, £6,567; auditors, £775 (£630); compensation for loss of office, nil (£1,000); profits tax, £27,812; income tax (including £66,000 for 1949-50 and after adjustment of £10,117 over-provided), £79,849 (taxes £101,647); net profit, £53,486 (£41,786, less £8,960 proportion of the subsidiary's profit prior to date of acquisition); off preliminary expenses, £2,331 (£618); expenses of introducing shares to the London Stock Exchange, £3,963 (nil); interim dividend of 35%, £19,250 (£17,875); final dividend of 40%, £22,000, making 75%; forward, £11,101 (£5,159). (Dividend for preceding period of about 8 months 49.18% actual.)

SIDNEY FLAVEL & COMPANY—Consolidated accounts for 1948 show trading profit, £56,814 (loss £12,944); interest and dividends, £121 (£19); to depreciation and amortisation provision, £19,474 (£14,037); bank interest, £6,586 (£2,746); directors' emoluments, £7,753 (£6,575); retired director's pension, £300 (nil); audit, £458 (£328); net profit, before tax, £22,364 (net loss £36,611); profit on sale of fixed assets, £1,415 (£159); income tax recoverable, nil (£1,473); available, £23,779; to income tax, £1,471 (£268); special repairs expenditure, nil (£1,930); special charges including cost of major factory reorganisation, £5,033 (£8,115); special amortisation of tools, etc., £2,500 (nil); profit balance, £14,775 (debit £45,292), to which is added surplus from previous year of parent company £216 (£17,508); deferred repairs provision brought in, nil (£10,000); transferred from general reserve, nil (£18,000); to interim dividend of 3⅜%, £4,950 (nil); forward, parent £9,649, subsidiaries £392 (debit £45,292). No further dividend is recommended.

METAL BOX COMPANY—Consolidated profit and loss for the year ended March 31, shows trading profits, £1,673,565 (£1,658,699); dividends, £6,238 (£4,536); non-recurring income, £73,876 (£52,963); to depreciation of fixed assets, £378,161 (£321,699); audit fees, £8,395 (£7,729); directors' fees, £2,500 (£2,271); debenture interest and fees, nil (£12,033); consolidated income before taxation, £1,364,623 (£1,372,466); to U.K. profits tax, £221,300 (£230,561); U.K. income tax, £442,944 (£504,942); overseas taxes, £154,007 (£80,224); to reduction for initial allowances, £109,000 (£115,000); net consolidated income, £655,372 (£671,739); patent rights and goodwill of overseas subsidiaries written off, nil (£53,253); new issue expenses of overseas subsidiaries, £12,090 (nil); to premiums on shares, £10,000; to reserve by subsidiaries—replacement of fixed assets £23,425 (£13,575), stock reserve £61,693 (£21,249); general reserve £39,375 (£46,875); minority interest in dividends, £15,550 (£4,728); undistributed profits, £3,902 (£9,398); interest of Metal Box Company in subsidiaries' undistributed profits, £36,268 (£28,813); net income of Metal Box Company, £473,069 (£493,857); to new issue and debenture redemption expenses, nil (£47,094); from last account, £207,804 (£219,470); available, £680,873 (£666,233); dividends on the 7% preference shares, £40,048 (same); dividend on the 4% second preference shares, £29,889 (£16,577); interim ordinary dividend of 5%, £49,676 (£47,700); final dividend of 15%, £149,027 (same); retained in the business by the holding company:—To stock reserve £181,064 (£42,379), to general reserve nil (£162,698), forward £231,169.

Personal

MR. L. EMANUELI has been elected a director of Pirelli-General Cable Works, Limited, Southampton.

MR. J. C. BAILEY has been elected a director of C. H. Bailey, Limited, shiprepairers, etc., of Newport, Mon.

MR. R. N. MARTINEAU and MR. C. G. RIECK have been elected directors of Peto Scott Electrical Instruments, Limited, Stoke Newington, London, N.16.

MAJOR ARTHUR J. THATCHER, camp commandant at H.Q. Northern Command, York, has been appointed welfare supervisor of the North Eastern Marine Engineering Company (1938), Limited.

MR. JOSEPH JAMES has received a presentation to mark his retirement after 40 years as works engineer at the Sunderland works of the North Eastern Marine Engineering Company (1938), Limited.

MR. J. PHILLIPS, for many years secretary, Vokes, Limited, filtration and silencing engineers, of Guildford, and MR. A. G. OSBORNE, general manager of the company, have been appointed directors.

SIR CLAUDE D. GIBB and MR. E. N. ROBINSON have been appointed chairman and deputy chairman respectively of A. Reyrolle & Company, Limited, manufacturing electrical engineers, of Hebburn, Co. Durham.

MR. W. C. GARRISON, chief cost accountant of Edgar Allen & Company, Limited, steel manufacturers, of Sheffield, has been appointed president of the Sheffield branch of the Institute of Cost and Works Accountants for 1949-50.

Wills

FERTEL, G. E. F., a Research Fellow in the Nuffield Physics Laboratory, Birmingham University ...	£5,312
NEWTON, J. W., late managing director of George Denham & Company, Limited, engineers, and founders, of Darlington	£3,642
HODGKINSON, CAPT. T. H., a director of Hudson Scott & Sons, Limited, Carlisle (now a branch of the Metal Box Company, Limited)	£46,720
PAGE, E. P., a vice-president of the National Association of Clayworks Managers (now the Institute of Clay Technology) and the Institute of Quarrying (of which he was one of the founders) and formerly associated with General Refractories, Limited, the Kelham Island Firebrick Company, Limited, and other companies	£753

MOULDING SANDS

YORKSHIRE · LEVENSEAT · BRAMCOTE · HENSALL
MANSFIELD · NO. 59 · YORK YELLOW · BAWTRY

SILICA SANDS

CHELFORD · K.L. · MINIMUM · MAXIMUM · LEVENSEAT . SOMERFORD
LEIGHTON BUZZARD · BAWTRY · CASTLETON · SOUTHPORT

GR

GENERAL REFRACTORIES LTD

GENEFAX HOUSE SHEFFIELD 10 *Telephone: Sheffield 31113*

203

Raw Material Markets

Iron and Steel

While new business for the foundries is not so pressing, orders on hand are sufficient to absorb current production of all grades of pig-iron and hematite. Output of high-phosphorus pig-iron for the light foundries will show improvement by the blowing in of furnaces which have been relined, and users obtaining supplies from those sources should now be able to get their normal allocations. It is still necessary for the furnaces producing the high-phosphorus grades to ration out supplies, as production does not permit of " free " distribution, and this applies to all other foundry grades of pig-iron and hematite. Many foundries find it difficult to secure their full licensed quantities.

The medium- and low-phosphorus pig-irons for the speciality, jobbing and engineering foundries are accepted by consumers up to total outputs, and more could be disposed of, as current production is barely sufficient for their needs. The increased tonnages of hematite which are now available are readily accepted as well as quantities of the refined grades. Supplies of scrap, both cast iron and steel, remain in strong demand, although improved deliveries have been obtained recently.

Outputs from the re-rollers continue at improved levels, and deliveries of steel from abroad have enabled some equality of supplies commensurate with current requirements to be achieved. This applies particularly to the light re-rollers, who were previously very short of small square and flat billets for the production of the lighter sections, bars and narrow strip. A large demand persists for all grades of sheet, both black and galvanised, and the mills are booked for their outputs for some time ahead. The heavy mills report satisfactory outputs, as they are receiving good tonnages of steel from home works and from abroad. The insistence in demand for semis which has characterised the industry for some considerable time now shows signs of relaxing, due entirely to the improved supplies coming from the Continent.

Non-ferrous Metals

Copper, zinc and lead quotations in the United States are resting on levels of 16 cents, 9 cents and 12 cents per lb., respectively, but there is still no confidence, despite the magnitude of the falls already experienced, that bottom has been reached. Buying in the U.S. is hand-to-mouth and will so continue until there is some indication that prices have grounded. The May statistics for copper showing U.S. deliveries of only 32,600 short tons, against production of 98,100 short tons of refined, were, in that respect, even worse than anticipated, although it is realised that consumption was considerably more than deliveries and that U.S. fabricators may well have reduced their stocks by as great a tonnage as they took in from producers. The situation in this country is similar to that in the United States as regards demand for new metal. Official quotations are considerably above the equivalent of current U.S. prices; for copper and zinc about £23, and for lead at least £10 per ton after allowing for delivery charges to United Kingdom works. At these levels, United Kingdom consumers are running down stocks to avoid the placing of new orders. The low point of prices is normally recognised as such only in retrospect, and that is likely to be so with U.S. quotations for copper, zinc and lead. An upward turn in the U.S., when it does come, will probably be a sharp one, due to a spate of deferred buying.

In so far as the U.S. stockpile requirements can halt the fall in prices, zinc would appear to be the least favourably placed. It is thought that stockpile buying of copper may be about 10,000 short tons, and of lead 12,000-14,000 short tons, per month for the second half of this year, whereas reports up to now do not include any zinc in the U.S. Government's prospective stockpile purchases for that period.

Metal Box Company Increases Selling Prices

Sir Robert Barlow, chairman of the Metal Box Company, Limited, in his statement for 1948-49, declares that " all our efforts have been submerged by the increase in steel prices authorised on April 1, 1949, when our main raw material—tinplate—was subject to the largest rise in our history and, indeed, to the greatest increase of any item in the whole steel range.

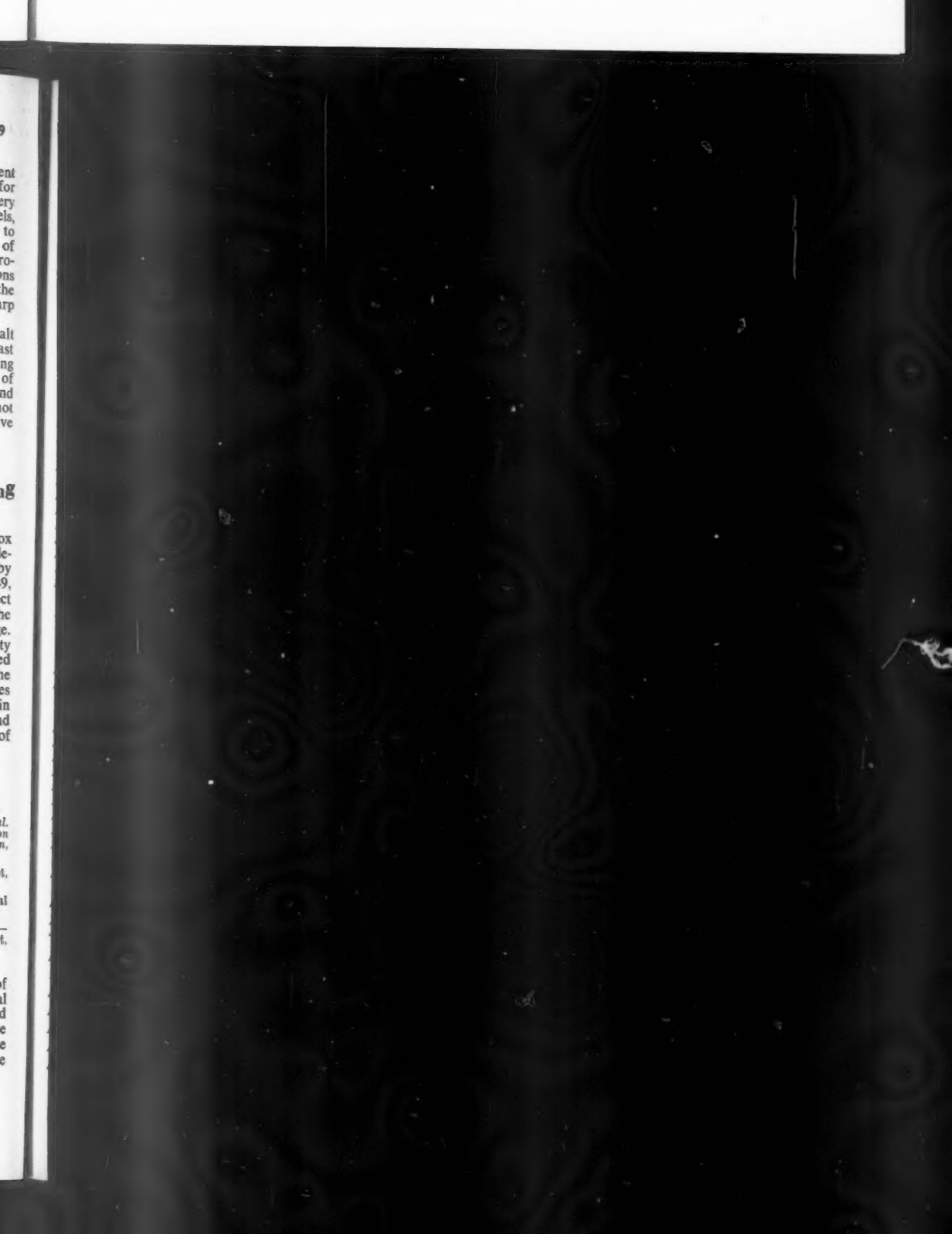
" We have, therefore, been obliged to seek authority for an increase in our selling prices and have obtained an official confirmation for such increase, including the adverse in wages recently authorised. The matter does not end there, however, for as a consequence certain ranges of tin boxes are priced out of the market and we ourselves are steadily increasing our production of substitute packages."

New Companies

(" Limited " is understood. Figures indicate capital. Names are of directors unless otherwise stated. Information compiled by Jordan & Sons, 116, Chancery Lane, London, W.C.2.)

JAMES WEBB & SONS (ENGINEERS), Church Street, Bloxwich, Staffs—£25,000. J., J. L., and J. S. Webb.

J. W. & T. H. CARTER, 83, Sharp Street, Hull—General engineers. £25,000. J. W. L. and T. H. M. Carter.

TALKE FOUNDRY & ENGINEERING COMPANY—£5,000. W. C. Coxon, The Oaks, Porthill, Stoke-on-Trent, subscriber.

IN HIS REVIEW with the accounts, the chairman of Ward & Goldstone, Limited, manufacturers of electrical equipment, etc., of Salford, Lancs, states that the board is giving attention to the desirability " of adjusting the issued amount of stock more in conformity with the actual capital utilised by the company." Notice will be given when a decision is reached.